SLR-GD-1

Seat No.	

Set P

B.Sc. (E.C.S.) (Semester - I) (New) (CBCS) Examination: March/April-2024
ENGLISH (Comp.)
Communication Skill (ECS1101)

Day & Date: Friday, 05-04-2024 Max. Marks: 40
Time: 12:00 PM To 02:00 PM

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Q.1 Rewrite the following by choosing the correct options given below. 08

1) The chairman wanted Mahatma Gandhi to give a speech on _____.
   a) politics b) religion
   c) sports d) business

2) _____ was the nickname of Jadav Payeng.
   a) Majoli b) Molai
   c) Masala d) Malaya

3) The grandmother of Khushwant Singh used to give stale _____ to dogs.
   a) chapatis b) parottas
   c) puris d) dhoklas

4) Rabindranath Tagore wanted _____ in his life.
   a) luxuries b) temptations
   c) dangers d) victories

5) Lotus is made of the qualities of the lily and the _____.
   a) jasmine b) rose
   c) marigold d) geranium

6) The father punished his son after he disobeyed him for the _____ time.
   a) first b) third
   c) seventh d) tenth

7) In the word ‘shamelessness’, ‘-less’ is an example of a _____.
   a) prefix b) suffix
   c) fix d) fixture

8) ‘He was craving <u>for</u> success.’ The underlined word in this sentence is _____.
   a) noun b) adjective
   c) preposition d) verb

Q.2 Answer the following questions briefly. (Any Four) 12

a) Why did Mahatma Gandhi give importance to Khadi?
b) How did the Majoli island lose its landmass?
c) How did the grandmother of Khushwant Singh die?
d) Why was Rabindranath Tagore interested in dangers?
e) Describe the quarrel between the lily and the rose.
f) Why did the father punish his son?

Q.3 **a)** Bring out the process of communication by illuminating different constituents of communication. **10**

OR

b) Elaborate different channels of communication.

Q.4 Write a detailed note on the intrapersonal skills. **10**

SLR-GD-2

Seat No.	

Set P

B.Sc. (E.C.S) (Semester - I) (New) (CBCS) Examination: March/April-2024
Fundamental of Computer (ECS1102)

Day & Date: Sunday, 12-05-2024 Max. Marks: 40
Time: 12:00 PM To 02:00 PM

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Q.1 Choose the correct alternatives from the options. **08**

1) Mnemonic a memory trick is used in which of the following language?
a) Machine language b) Assembly language
c) High level language d) None of above

2) CD-ROM is a _____.
a) Semiconductor memory b) Memory register
c) Magnetic memory d) None of above

3) _____ is characteristic of RAID 5.
a) Distributed parity b) No Parity
c) All parity in a single disk d) Double Parity

4) Computer is free from tiredness we call it _____.
a) accuracy b) automatic
c) diligence d) versatility

5) UNIVAC is _____.
a) Universal Automatic Computer b) Universal Array Computer
c) Unique Automatic Computer d) Unvalued Automatic Computer

6) The capacity of 3.5 inch floppy disk is _____.
a) 1.40 MB b) 1.44 GB
c) 1.40 GB d) 1.44 MB

7) _____ is responsible for converting the data received from the user into a computer understandable format.
a) Output Unit b) Input Unit
c) Memory Unit d) Arithmetic & Logic Unit

8) EPROM stands for _____.
a) Erasable Programmable Read Only Memory
b) Electrically Erasable Programmable Read Only Memory
c) Programmable Read Only Memory
d) None of these

Q.2 Answer any four of the following **08**

a) What is meant by soft copy and hard copy output?
b) What are the different types of binary complements?
c) Define compiler.
d) What is a volatile and non-volatile memory?
e) Define SMPS.
f) List out characteristics of the computers.

Q.3 Write short notes on any two of the following **08**

a) What is scanner? Explain types of scanner.
b) Explain block diagram of computer in detail.
c) Explain any 2 generation of computer in detail.

Q.4 Answer any Two of the following **08**

a) What is Primary Memory? Explain its types in detail.
b) i) $(11.10)_{10} = (?)_{16}$
ii) $(1B.2D)_{16} = (?)_{10}$
c) What is Printer? Explain types of Printers in detail.

Q.5 Answer any one of the following **08**

a) What is Secondary Memory? Explain its types in detail.
b) Define Computer Language? Explain Types of Computer language.

SLR-GD-3

Seat No.	

Set P

B.Sc. (E.C.S.) (Semester - I) (New) (CBCS) Examination: March/April-2024
Basics of Operating System (ECS1103)

Day & Date: Wednesday, 10-04-2024 Max. Marks: 40
Time: 12:00 PM To 02:00 PM

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Q.1 Multiple choice questions: **08**

1) The priority scheduling algorithm suffers by _____.
a) Starvation b) Aging
c) Deadlock d) All of these

2) In the current processes the entry of all the PCBs are in _____.
a) Program Counter b) Process Register
c) Process Unit d) Process Table

3) "Throughput" of a system is _____.
a) Number of programs processed by it per unit time
b) Number of times the program is invoked by the system
c) Number of requests made to a program by the system
d) None of the above

4) Interval between the time of submission and completion of the job is called ____.
a) Waiting time b) Turn-around time
c) Throughput d) Response time

5) FIFO scheduling is _____.
a) Preemptive scheduling b) Non- preemptive scheduling
c) Deadlock scheduling d) None of these

6) Which is of these following functions of the operating system?
a) Memory management b) process management
c) File management d) All of these

7) There is a guarantee that the critical tasks are completed in given amount of time. That is called as _____.
a) Hard Real time systems b) Soft real time system
c) Real time systems d) None of these

8) Process is called as a _____ entity.
a) Passive b) Active
c) Non active d) None of these

Q.2 Answer any Four of the following. **08**

a) What is Response Time?
b) What is mean by Multiprogramming?
c) Define Hard Real Time O.S.
d) What is Co-Operating Process?
e) Define the term Semaphores?
f) What is Throughput?

Q.3 Write short notes on any two of the following. **08**

a) Batch Operating System
b) SJF Scheduling algorithms
c) Process Control Block

Q.4 Answer any Two of the following. **08**

a) Explain the different Services provided by Operating System?
b) What is process? Explain process state with block diagram?
c) What is Scheduler? Explain Types of Schedulers?

Q.5 Answer any one of the following. **08**

a) Explain FCFS Scheduling Algorithms with example?
b) Define Process Synchronization? Explain Dinning Philosopher problem?

SLR-GD-4

Seat No.	

Set P

B.Sc. (E.C.S.) (Semester - I) (New) (CBCS) Examination: March/April-2024
Programming using 'C' (ECS1104)

Day & Date: Friday, 12-04-2024 Max. Marks: 40
Time: 12:00 PM To 02:00 PM

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Q.1 Choose correct alternatives. **08**

1) _____ is the pictorial representation of algorithm.
a) Algorithm b) Problem
c) Flowchart d) None of these

2) Array elements are always stored in _____ memory locations.
a) Random b) Sequential
c) Both a and b d) None of above

3) Which among the following is an unconditional control structure?
a) do-while b) if-else
c) goto d) for

4) Which of the following are tokens in C?
a) Keywords b) Variables
c) Constants d) All of the above

5) The bitwise AND operator is represented by _____.
a) && b) &
c) ^ d) |

6) Which is the correct format specifier for double type value in C?
a) %d b) %f
c) %lf d) %LF

7) Which operator is used to find the remainder of two numbers in C?
a) / b) \
c) % d) //

8) Which function is used to concatenate two strings in C?
a) concat() b) cat()
c) stringcat() d) strcat()

Q.2 Answer any four of the following. **08**

a) What are the rules for declaration of variable?
b) Explain relational operators.
c) Explain if-else ladder statement.
d) Explain different format specifiers in C.
e) Syntax of while loop.
f) What is pointer?

Q.3 Write notes on any two of the following. **08**

a) Data types in C
b) four string inbuilt functions
c) backword jump using goto

Q.4 Answer any two of the following. **08**

a) Explain switch statement with example.
b) Explain do while loop with example.
c) Write a C program to check entered number is positive or not using function.

Q.5 Answer any one of the following. **08**

a) Explain different types of array with example.
b) Explain different types of user defined functions with example.

SLR-GD-5

Seat No.	

Set P

B.Sc. (E.C.S.) (Semester - I) (New) (CBCS) Examination: March/April-2024
Python - I (ECS1105)

Day & Date: Saturday, 13-04-2024 Max. Marks: 40
Time: 12:00 PM To 02:00 PM

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Q.1 Multiple choice questions. **08**

1) What is used for multi-line strings in Python?
a) Three braces {{{ }}}} b) Three Colons ::: :::
c) Three hashes ### ### d) Three Quotes ''' '''

2) In dictionary keys and values are separated by _____.
a) Comma (,) b) Semicolon (;)
c) Colon (:) d) None of the above

3) In IDLE shell, the output will be the same for all the following statements except one. Which one?
a) 4*3 b) 60//5
c) 17-5 d) 12/1

4) All keywords in Python are in _____.
a) Capitalized b) lower case
c) UPPER CASE d) None of the mentioned

5) _____ returns the number of times the given element appears in the tuple.
a) tuple() b) len()
c) count() d) index()

6) Which of the following operators has its associativity from right to left?
a) + b) //
c) % d) **

7) Which method returns True if all the characters in the string are digits?
a) digit() b) isdigit()
c) alldigit() d) digits()

8) Which of the following expressions is an example of type conversion?
a) 4.0 + float(3) b) 5.3 + 6.3
c) 5.0 + 3 d) 3 + 7

Q.2 Answer any four of the following. **08**

a) Define pass statement.
b) Define assert statement.
c) Give the various data types in Python.
d) Define comments in python.
e) Write down syntax and example of importing array module.
f) Write the syntax of if and if-else statements.

Q.3 Write short notes on any two of the following. **08**

a) What is Literals? Explain different types of Literals in python.
b) Write a program to find the largest number input from the user.
c) Explain Operator precedence and associativity in detail.

Q.4 Answer any two of the following. **08**

a) Explain any eight features of python.
b) Write a python program to display stars in right angled triangular form using nested for loops.
c) What is Dictionary? Explain any 6 methods of Dictionary with example.

Q.5 Answer any one of the following. **08**

a) What is String? Explain any six methods of String with example.
b) Explain Bit wise operators and Membership operators with example.

SLR-GD-6

Seat No.	

Set P

B.Sc. (E.C.S.) (Semester - I) (New) (CBCS) Examination: March/April-2024
Numerical Methods (ECS1106)

Day & Date: Monday, 15-04-2024 Max. Marks: 40
Time: 12:00 PM To 02:00 PM

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.
3) Use of scientific calculator is allowed.

Q.1 Multiple choice questions **08**

1) While doing multiplication of two numbers in normalized floating point form, the exponents should be _____.
a) added b) subtracted
c) multiplied d) divided

2) If the data is equally spaced & interpolation is near the end of the data then _____ interpolation formula is used.
a) Newton's forward difference b) Newton divided difference
c) Lagranges d) Newton's backward difference

3) Simpson's 1/3rd rule is obtained by putting n = _____ in general quadrature formula.
a) 1 b) 2
c) 3 d) 4

4) The first order divided difference is _____
a) $\frac{f(x_1)-f(x_0)}{x_1-x_0}$ b) $f(x_1)-f(x_2)$
c) $\frac{f(x_1)+f(x_0)}{x_1-x_0}$ d) $f(x_0)-f(x_1)$

5) In Runge-Kutta fourth order $k_2 =$ _____.
a) $hf(x_0+h, y_0+k_1)$ b) $hf(x_0+h/2, y_0+k_1/2)$
c) $f(x_0+h/2, y_0+k_1/2)$ d) $hf\ (x_0, y_0)$

6) Taylor series method is used to solve _____ equations.
a) Differential b) Integral
c) Linear d) Interpolating

7) $E^{-2}f(x+h) =$ _____.
a) $f(a+x)$ b) $f(x-2h)$
c) $f(x+2h)$ d) $f(x-h)$

8) _____ is the process of finding the required numerical value of $f(x)$ where 'x' lies within the given range of the data.
a) Integration b) Extrapolation
c) Differentiation d) Interpolation

Q.2 Answer any four of the following questions. **08**

a) State Taylor's series.

b) Define Relative error.

c) Prepare forward difference table for the following date

x	0.20	0.22	0.24	0.26
$f(x)$	1.6596	1.6698	1.6804	1.6912

d) Show that $\Delta = E - 1$

e) State Simpson's $\frac{1}{3}$rd rule.

f) Define $\Delta f(x)$ and $\nabla f(x)$.

Q.3 Write Notes on any two of the following. **08**

a) Prove that $(\Delta - \nabla) = \Delta\nabla = \delta^2$

b) Define:

1) Ordinary Differential equation
2) Order of Differential Equation
3) Degree of Differential Equation

c) $\frac{dy}{dx} = \frac{y-x}{y+x}$, $y(0) = 1$,Estimate $y(0.1)$ by Euler's method, $h = 0.02$

Q.4 Answer any two of the following. **08**

a) $\int_0^1 \frac{4x}{(1+x)^2} dx$ by Simpson's $\frac{3}{8}$rd rule and divide it into 6 equal parts.

b) Evaluate the following

a) $0.7658E_5 + 0.7896E_4$

b) $0.7692E_3 - 0.5654E_2$

c) $4.1228E_{-2} \times 2.1819E_4$

d) $0.7178E_5 \div 0.2166E_{-3}$

c) The following table gives the sales of Pentium for software company. Estimate the sales for the year 1999 by Newton's Gregory backward difference interpolation formula.

Year(x)	1994	1996	1998	2000
Sales in Company	43	48	52	57

Q.5 Answer any one of the following questions. **08**

a) Find $y(10)$ for the following data by Lagreange's method.

(x)	5	6	9	11
$f(x)$	12	13	14	16

b) Find $y(0.1)$, given that $\frac{dy}{dx} = y - x$, $y(0) = 2$ by Runge Kutta IInd and IVth order method.

SLR-GD-7

Seat No.	

Set P

B.Sc. (E.C.S.) (Semester - I) (New) (CBCS) Examination: March/April-2024
Graph Theory (ECS1107)

Day & Date: Tuesday,16-04-2024 Max. Marks: 40
Time: 12:00 PM To 02:00 PM

Instructions: 1) All questions are compulsory.
2) Draw neat diagrams wherever necessary.
3) Figures to the right indicate full marks.

Q.1 Multiple choice questions. **08**

1) The complement of null graph is _____.
a) Regular b) Simple
c) Complete d) Bipartite

2) A tree with 12 vertices has _____ edges.
a) 11 b) 12
c) 13 d) 10

3) Order of adjacency matrix of a graph having 5 vertices and 9 edges is _____.
a) 5×9 b) 9×5
c) 9×9 d) 5×5

4) A walk in which no vertex is repeated is called as _____.
a) Path b) Trail
c) Circuit d) tour

5) _____ is a particular case of the Hamiltonian graph.
a) Chinese Postman Problem
b) Traveling Salesman Problem
c) Kruskal's Algorithm
d) Seven Bridge Problem

6) Let G be a connected graph with n vertices m edges. To find spanning tree T from G, we have to remove _____ number of edges.
a) m-(n-1) b) n-(m-1)
c) n(n-1) d) n-1

7) For the simple graph $G_1(V_1, E_1)$ & $G_2(V_2, E_2)$ the vertex set of the product of graph $G_1 \times G_2$ is _____.
a) $V_1 \times V_2$ b) $V_1 \oplus V_2$
c) $V_1 \cap V_2$ d) None of these

8) A connected graph is a tree if it has _____.
a) Exactly one circuit b) More than one circuit
c) No circuit d) None of these

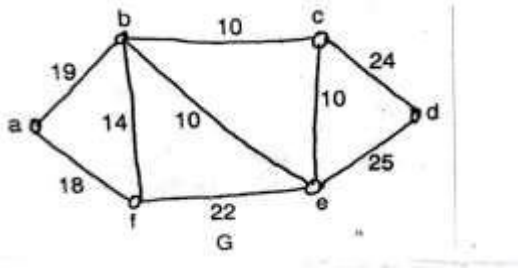
Q.2 Answer any Four of the following. **08**

a) Define Isolated vertex and pendant vertex.

b) Define r-regular graph.

c) Define Hamiltonian graph with suitable example.

d) Find the total degree of the given graph.



e) Define complete graph.

f) Draw $K_{5,3}$.

Q.3 Write short notes on any two of the following. **08**

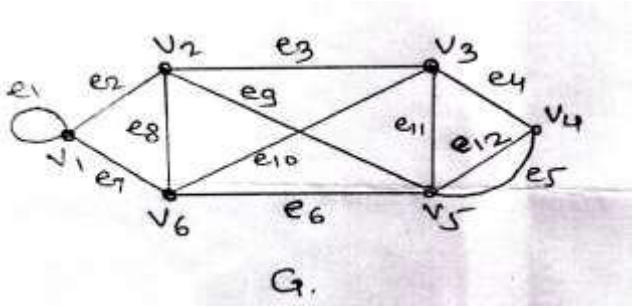
a) State and prove Hand shaking lemma.

b) In a graph G(V, E) the number of vertices of odd degree is even.

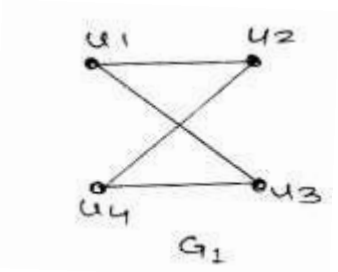
c) A tree with n vertices has n-1 edges.

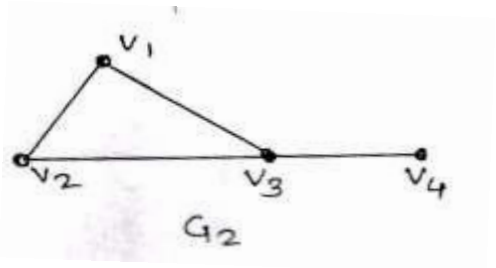
Q.4 Answer any two of the following. **08**

a) Write adjacency and Incidence matrix for the following graph.

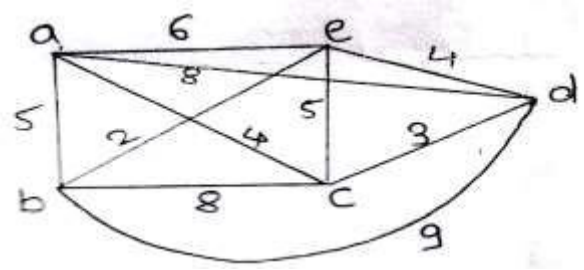


b) From the following graph, find $G_1 \times G_2$.



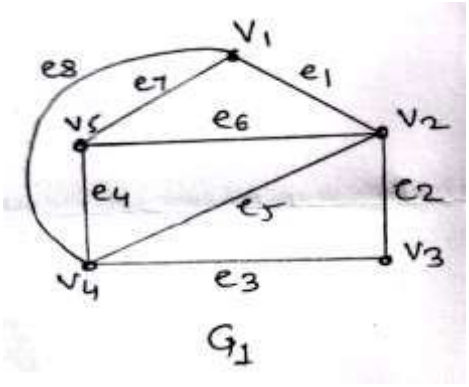


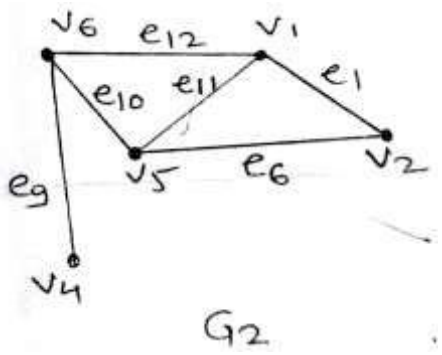
c) Starting with a vertex 'a' solve the traveling salesman profile. Also find the minimum distance traveled.



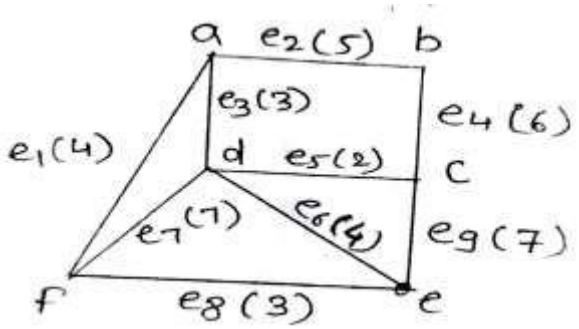
Q.5 Answer any One of the following. **08**

a) From the following graph G_1 and G_2, draw the graphs $G_1 \cup G_2$, $G_1 \cap G_2$ and $G_1 \oplus G_2$.





b) Define Shortest spanning tree and by Kruskal's algorithm find the shortest spanning tree.



SLR-GD-8

Seat No.	

Set P

B.Sc. (E.C.S.) (Semester - I) (New) (CBCS) Examination: March/April-2024
Basic Electronics (Paper - I) (ECS1108)

Day & Date: Thursday, 18-04-2024 Max. Marks: 40
Time: 12:00 PM To 02:00 PM

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.
3) Draw neat diagrams wherever necessary.
4) Non programmable calculators are allowed.

Q.1 Multiple choice questions. **08**

1) Unit of variable resistor is _____.
a) ohm b) henry
c) farad d) volt

2) In step down transformer secondary winding is _____ primary winding.
a) same b) less than
c) more than d) unequal

3) Energy gap between VB and CB in conductor is _____ eV.
a) 5 b) 3
c) 1 d) 0

4) Iron is used as core in _____.
a) inductor b) resistor
c) air gang capacitor d) mica capacitor

5) Holes are majority carriers in _____ FET.
a) N channel b) P channel
c) PN channel d) NPN

6) Junction of diode breaks at _____ voltage.
a) VBR b) VBB
c) VCC d) VSS

7) Efficiency of full wave rectifier is _____.
a) 40% b) 41%
c) 81.4% d) 81.6%

8) MOS FET uses _____ on gate side.
a) Al_2O_3 b) Al_2O_2
c) SiO_2 d) SiO_3

Q.2 Answer any four of the following. **08**

a) Define capacitance.
b) Explain conductor.
c) Write application of BJT.
d) Explain mutual inductance.
e) Explain diode components.
f) Explain PIV of rectifier.

Q.3 Write notes on any Two of the following. **08**

a) Explain regulated power supply.
b) Explain formation of PN junction.
c) Explain carbon composition resistor.

Q.4 Answer any Two of the following. **08**

a) Explain aluminum capacitor.
b) Explain carbon composition potentiometer.
c) Explain half wave rectifier with circuit diagram.

Q.5 Answer any one of the following. **08**

a) Explain construction and working of NPN transistor, write application of transistor.
b) Classify resistors and variable resistor.

SLR-GD-9

Seat No.	

Set P

B.Sc. (E.C.S.) (Semester - I) (New) (CBCS) Examination: March/April-2024
Advanced Electronics (Paper – II) (ECS1109)

Day & Date: Friday, 19-04-2024 Max. Marks: 40
Time: 12:00 PM To 02:00 PM

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.
3) Draw neat diagrams wherever necessary.
4) Non programmable calculator is allowed.

Q.1 Choose correct alternative for the following **08**

1) _____ material used for green color LED.
a) GaAs b) GaN
c) GaP d) GaAsP

2) _____ no of components are fabricated in MSI IC
a) 500 to 50000 b) 0 to 10
c) 30 to 100 d) 100 to 1 lakh

3) _____ is used as insulation layer in IC.
a) FeO_2 b) SiO_2
c) GeO_2 d) CO_2

4) Bead thermistor has _____ mm diameter.
a) 0.10 b) 0.15
c) 0.20 d) 0.30

5) _____is used as epitaxial layer in IC fabrication.
a) N b) P
c) Sio2 d) None of theses

6) In SSI IC components fabricated up to _____.
a) 0 to 100 b) 0 to 10
c) 0 to 30 d) 0 to 500

7) LCD use _____ and SnO3 material.
a) IN2O3 b) IN2O2
c) INO3 d) INO

8) _____ is output device.
a) LED b) LDR
c) Thermistor d) Photodiode

Q.2 Answer any four of the following **08**

a) Explain linear IC.
b) Write use of photodiode
c) Draw diagram of common cathode display.
d) Define sensor
e) Write subfamilies of TTL IC.
f) Write use of single layer PCB

Q.3 Write short notes on any two of the following. **08**

a) Explain construction of LCD
b) Explain fabrication of diode
c) Explain SMT.

Q.4 Answer any Two of the following. **08**

a) Explain TTL logic gates AND, NOT
b) Explain multilayer PCB.
c) Explain fabrication of capacitor

Q.5 Answer any one of the following. **08**

a) Explain IC fabrication steps - wafer formation, epitaxial growth, insulation layer, masking and etching.
b) Explain construction and working of thermistor, LDR.

SLR-GD-10

Seat No.	

Set P

B.Sc. (E.C.S.) (Semester - II) (New) (CBCS) Examination: March/April-2024
ENGLISH (Comp.)
Communication Skill (ECS1201)

Day & Date: Friday, 10-05-2024 Max. Marks: 40
Time: 09:00 AM To 11:00 AM

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Q.1 Multiple choice questions: **08**

1) What was the author reading?
   a) Novels b) Autobiography
   c) Biographies d) Poetry

2) _____ was referred to as the 'Bard of Bengal'.
   a) Toru Dutt b) Mahatma Gandhi
   c) Rabindranath Tagore d) Khushwant Singh

3) What is the honorable part of discourse?
   a) To talk b) To listen
   c) To lead d) To give opportunity

4) What is the profession of the ideal man described in the poem Ode on Solitude?
   a) Pastor b) Farmer
   c) Cobbler d) None of these

5) What does the poet want the lover to do?
   a) Forget and smile b) Remember and be sad
   c) Remember and be happy d) Forget and be happy

6) Christina Rossetti is an _____ poet.
   a) Indian b) English
   c) Anglo-Irish d) Nigerian

7) Identify the correct synonym of *Beautiful* from the given options.
   a) good b) marvelous
   c) gorgeous d) none of these

8) Use the form of verbs as has been Instructed.
   I had never made a long bike trip before, but I _____ to go for it soon.
   (plan - present continuous)
   a) have planned b) am planning
   c) was planning d) will plan

Q.2 Write the answers in short. (Any Four) **12**

a) What opinion does the author have of the education system of his time?
b) What is the true sense of freedom?
c) Discuss the theme of the poem "Our Earth Will not Die".
d) Why is the poet emphasizing on Solitude in the poem and What does it mean to him?
e) Write in brief about the poem Remember.
f) What is the relation between virtue and debate?

Q.3 Answer the following questions. (Any One) **10**

Prepare a presentation on your favorite personality.

OR

You are Ankit/Amrita Verma, staying at "Yamunai" Station Road, Pune - 410001. You have come across an advertisement in ***The Times of India*** for recruitment of Computer Engineer trainees by Tata Consultancy Services. Apply in response to this advertisement.

Q.4 Answer the following question. **10**

What is mean by interpersonal Intelligence? How we can improve our Interpersonal Intelligence?

SLR-GD-11

Seat No.	

Set P

B.Sc. (E.C.S) (Semester - II) (New) (CBCS) Examination: March/April-2024
Introduction to Web Technology (ECS1202)

Day & Date: Saturday, 11-05-2024 Max. Marks: 40
Time: 09:00 AM To 11:00 AM

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Q.1 Choose the correct alternatives from the options. **08**

1) HTML is _____ type of the language.
a) Scripting Language b) Markup Language
c) Programming Language d) Network Protocol

2) The BODY tag is usually used after _____ tag.
a) HTML tag b) TABLE tag
c) HEAD tag d) TITLE tag

3) <a> and are the tags used for _____.
a) Adding image b) Aligning text
c) Audio-voiced text d) Adding links to your page

4) Which of the following is a component of CSS style rule?
a) Selector b) Property
c) Value d) All of the above

5) _____ method evaluates a string of JavaScript code in the context of the specified object.
a) Eval b) ParseInt
c) ParseFloat d) Efloat

6) Which of the following property is used to change the face of a font?
a) font-family b) font-style
c) font-variant d) font-weight

7) _____ keyword is used to declare variables in JavaScript.
a) String b) Dim
c) Var d) None of the above

8) Which attribute can be used with BODY tag to set background image?
a) Background b) Bgcolor
c) Vlink d) None Of Above

Q.2 Answer the following questions. (Any Four) **08**

a) Define the term Web technology?
b) What is mean by Internet?
c) Define Variables in JavaScript?
d) Explain the Uses of CSS?
e) Explain DOM in JavaScript?
f) What is mean by Networking?

Q.3 Write Short Notes. (Any Two) **08**

a) Animations in CSS
b) Built-in functions in JavaScript
c) Image tag in HTML

Q.4 Answer the following questions. (Any Two) **08**

a) What is mean by tag? Explain types of tag with example.
b) Explain box model with example in CSS.
c) Explain the different Control structure in JavaScript

Q.5 Answer the following questions. (Any One) **08**

a) What is mean by CSS? List out different CSS Properties. Explain any two with example?
b) What is Frame? Explain Frame tag with Example in HTML.

SLR-GD-12

Seat No.	

Set P

B.Sc. (E.C.S) (Semester - II) (New) (CBCS) Examination: March/April-2024
Operating System (ECS1203)

Day & Date: Monday, 13-05-2024 Max. Marks: 40
Time: 09:00 AM To 11:00 AM

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Q.1 Multiple choice questions. **08**

1) A system is in a safe state only if there exists a: _____.
a) Safe allocation b) Safe resource
c) Safe sequence d) All of the above

2) The data structures available in the Banker's algorithm are: _____.
a) Available b) Need
c) Allocation d) All of the Above

3) Physical memory is broken into fixed-sized blocks called _____.
a) Frames b) Pages
c) Backing store d) None of the Above

4) In a segmentation scheme the logical memory will be divided into _____.
a) Pages b) Frames
c) Blocks d) Segments

5) _____ algorithm has lowest page fault rate.
a) FIFO b) LRU
c) Optimal page replacement d) None of the above

6) _____ Memory allocation scheme suffers from external fragmentation.
a) Segmentation b) Pure demand paging
c) Swapping d) Paging

7) _____ is a technique of temporarily removing inactive programs from the Memory of Computer system.
a) Swapping b) Spooling
c) Semaphore d) Scheduler

8) Which of the following memory management scheme loads all pages of a program from disk into main memory?
a) Paging b) Demand paging
c) Segmentation d) Demand segmentation

Q.2 Answer any four of the following. **08**

a) What is Deadlock?
b) Define Logical and Physical address Space?
c) Define the term Virtual Memory.
d) What is Mean by File Management.
e) What is Dynamic Loading?
f) What is disk structure

Q.3 Write short notes on any two of the following. **08**

a) Write Short note on Deadlock Prevention.
b) Write Short note on File operation.
c) Write Short note on Demand paging.

Q.4 Answer any Two of the following. **08**

a) Explain different Characterization of Deadlock?
b) Define the Swapping? Explain Swapping in detail?
c) What is disk scheduling? Explain FCFS disk scheduling algorithm?

Q.5 Answer any one of the following. **08**

a) Explain banker's algorithm with Example.
b) What is paging? Explain Paging with advantages and disadvantages.

SLR-GD-13

Seat No.	

Set P

B.Sc. (E.C.S.) (Semester - II) (New) (CBCS) Examination: March/April-2024
Object Oriented Programming using C++ (ECS1204)

Day & Date: Tuesday, 14-05-2024 Max. Marks: 40
Time: 09:00 AM To 11:00 AM

Instructions: 1) All questions are compulsory.
2) Draw neat diagrams and give equations wherever necessary.
3) Figures to the right indicate full marks.
4) Use of logarithmic table and calculator is allowed.

Q.1 A) Choose correct alternative. (MCQ) **08**

1) Which of the following features must be supported by any programming language to become a pure object-oriented programming language?
   a) Encapsulation b) Polymorphism
   c) Inheritance d) All of these

2) Which of the following is the original creator of the C++ language?
   a) Dennis Ritchie b) Ken Thompson
   c) Bjarne Stroustrup d) Brian Kernighan

3) Which of the following statements is correct about the class?
   a) An object is an instance of its class
   b) class is an instance of its object
   c) An object is the instance of the data type of that class
   d) Both A and C

4) Which of the following statements is correct about the friend function in C++ programming language?
   a) A friend function is able to access private members of a class
   b) A friend function can access the private members of a class
   c) A friend function is able to access the public members of a class
   d) All of the above

5) How can one implement the run-time Polymorphism in the C++ programming language?
   a) By using the Template
   b) By using the concepts of inheritance
   c) By using both the virtual functions and inheritance
   d) By using only, the virtual functions

6) Which of the following refers to the wrapping of data and its functionality into a single individual entity?
   a) Modularity b) Abstraction
   c) Encapsulation d) None of the above

7) Which of the following refers to using the existing code instead of rewriting it?
   a) Inheritance b) Encapsulation
   c) Abstraction d) Both A and B

8) Which one of the following cannot be used with the virtual keyword?
   a) Constructor b) Destructor
   c) Member function d) None of the above

Q.2 Answer Any Four of the following. **08**

a) Why friend function is important in C++?
b) Differentiate between Abstraction and Encapsulation.
c) What is the importance of destructors?
d) Define class and object.
e) What is type conversion?
f) What is this pointer?

Q.3 Write short notes on Any Two of the following. **08**

a) Types of constructors.
b) File stream classes.
c) Operator overloading.

Q.4 Answer Any Two of the following. **08**

a) What are the advantages of OOPS approach over procedural programming.
b) Write a program to find factorial of a number using class object and function.
c) Explain dynamic memory management in C++ with example.

Q.5 Answer Any One of the following. **08**

a) What is runtime polymorphism? How it is achieved in C++? Explain with the help of example.
b) What is inheritance? Explain types of inheritance with example.

SLR-GD-14

Seat No.	

Set P

B.Sc. (E.C.S.) (Semester - II) (New) (CBCS) Examination: March/April-2024
Python – II (ECS1205)

Day & Date: Wednesday, 15-05-2024 Max. Marks: 40
Time: 09:00 AM To 11:00 AM

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Q.1 Choose the correct alternatives each of the following. **08**

1) _____ is a variable defined outside a function referred to as.
a) Local variable b) Global variable
c) Static Variable d) Automatic variable

2) To open a file c:\scores.txt for appending data, we use _____.
a) outfile = open ("c:\\scores.txt", "a")
b) outfile = open ("c:\\scores.txt", "rw")
c) outfile = open (file = "c:\scores.txt", "w")
d) outfile = open (file = "c:\\scores.txt", "w")

3) How many except statements can a try-except block have?
a) Zero b) One
c) More than one d) More than zero

4) _____ is correct with respect to OOP concept in Python
a) Objects are real world entities while classes are not real.
b) Classes are real world entities while objects are not real.
c) Both objects and classes are real world entities.
d) Both object and classes are not real.

5) _____ is used to create an object.
a) Class b) Constructor
c) User-defined functions d) In-built functions

6) _____ keyword is use for function.
a) Define b) Fun
c) Def d) Function

7) Which of the following statements are true?
a) When you open a file for reading, if the file does not exist, an error occurs.
b) When you open a file for writing, if the file does not exist, a new file is created.
c) When you open a file for writing, if the file exists, the existing file is overwritten with the new file.
d) All of the mentioned.

8) When will the else part of try-except-else be executed?
a) Always
b) when an exception occurs
c) when no exception occurs
d) when an exception occurs in to except block

Q.2 Answer Any Four of the following. **08**

a) Define Error in python program.
b) What are the Features of OOP?
c) Define abstraction.
d) Write down syntax and example of from...import statement.
e) Write down basic rules of global Keyword.
f) What is function?

Q.3 Answer Any Two of the following. **08**

a) What is constructor? Explain types of constructor with example.
b) Write a python program to demonstrate inner classes.
c) Explain local, nonlocal and global variables.

Q.4 Answer Any Two of the following. **08**

a) Explain seek() and tell() methods.
b) What is the difference between function and method.
c) What is a file? What are the types of files in python?

Q.5 Answer Any One of the following questions. **08**

a) What is an exception? Explain built-in exceptions and user defined exceptions with example.
b) What is inheritance? Explain types of inheritance with example.

SLR-GD-15

Seat No.		Set	P

B.Sc. (E.C.S) (Semester - II) (New) (CBCS) Examination: March/April-2024
Linear Algebra (ECS1206)

Day & Date: Thursday, 16-05-2024 Max. Marks: 40
Time: 09:00 AM To 11:00 AM

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.
3) Draw neat diagrams and give equations wherever necessary.
4) Use of logarithmic table of calculator is allowed.

Q.1 Choose the correct alternatives from the options. **08**

1) A matrix having only one row is called _____ matrix.
a) Row b) column
c) void d) none of these

2) If all the entries of the matrix are zero is called _____ matrix.
a) symmetric b) zero
c) square d) None of these

3) The matrix A transpose of transpose = _____.
a) A b) B
c) A transpose d) none of these

4) A matrix having only one column is called _____ matrix.
a) Row b) column
c) void d) none of these

5) A matrix obtained by interchanging row by column and column by row is called _____ matrix.
a) zero b) transpose
c) unit d) none of these

6) A diagonal matrix in which all diagonal elements are equal is called _____ matrix
a) Identity b) unit
c) scalar d) None of these

7) the cofactor cij =
a) $(-1)^{i+j}$ mij b) mij
c) -mij d) none of these

8) The number of the form $Z = a + ib$ is called _____ number.
a) complex b) real
c) natural d) none of these

Q.2 Answers any four of the following. **08**

a) Define square matrix.
b) Define system of linear equation.
c) Define determinant of the matrix.
d) Define conjugate of the complex number.
e) find modulus of $z = 1 + i$
f) Define homogeneous system of linear equation.

Q.3 Write short notes on any two of the following. **08**

a) Obtain row echelon form of the following matrix.

$$A = \begin{bmatrix} 1 & 2 & 3 \\ 1 & 0 & 2 \\ 2 & 3 & 1 \end{bmatrix}_{3\times3}$$

b) Define symmetric and skew- symmetric matrix.

c) Find modulus and argument of the following complex number.

$z^{=}7 + 24\,i$

Q.4 Answers any two of the following. **08**

a) solve the following linear equation by crammers rule.

$x + y + 2z = 0;$

$2x + 4y - 3z = 1;$

$3x + 6y - 5z = 0;$

b) verify cayley Hamilton theorem of the following matrix.

$$A = \begin{bmatrix} 1 & 1 & 2 \\ 3 & 1 & 1 \\ 2 & 3 & 1 \end{bmatrix}_{3\times3}$$

c) solve the following system of linear equation by Gauss elimination method.

$x + y + 3z = 0;$

$3x + 4y - 4z = -2;$

$5x + y - 6z = 5;$

Q.5 Answers any one of the following. **08**

a) solve the following system of linear equation by Gauss Jordan elimination method

$x + y + 2z = 9;$

$2x + 4y - 3z = 1;$

$3x + 6y - 5z = 5;$

b) Define minor also find inverse of the following matrix by Adjoint method.

$$A = \begin{bmatrix} 1 & 1 & 1 \\ 1 & -1 & 1 \\ 1 & 2 & -1 \end{bmatrix}_{3\times3}$$

SLR-GD-16

Seat No.	

Set P

B.Sc. (E.C.S) (Semester - II) (New) (CBCS) Examination: March/April-2024
Discrete Mathematics (ECS1207)

Day & Date: Friday, 17-05-2024 Max. Marks: 40
Time: 09:00 AM To 11:00 AM

Instructions: 1) All questions are compulsory.
2) Draw neat diagrams wherever necessary.
3) Figures to the right indicate full marks.

Q.1 Multiple choice questions. **08**

1) If $|A| = 333$, $|B| = 200$, $|C| = 142$, $|A \cap B| = 66$, $|B \cap C| = 2$, $|A \cap C| = 4$, $|A \cap B \cap C| = 9$ find $|A \cup B \cup C|$
a) 388 b) 346
c) 389 d) 400

2) If $A = \{1,2,3,4,5\}$, $B = \{a, c, x, d, u\}$ then $|A \times B| =$ _____.
a) 11 b) 20
c) 25 d) 14

3) The characteristic equation of recurrence relation $a_r - 4a_{r-1} + 4a_{r-2} = 0$ is _____.
a) $m^3 - 4m^2 + 4m = 0$ b) $m^3 - 4m^2 + 4 = 0$
c) $m^2 - 4m + 4 = 0$ d) None of these

4) Total solution for the Homogeneous recurrence relation is _____.
a) Homogeneous solution + particular solution
b) Homogenous solution
c) Non-homogeneous solution + particular solution
d) Non-homogenous solution

5) Inverse of function exist if it is _____.
a) one-one function b) onto function
c) bijective function d) None of these

6) Pigeon hole principle states that "If we have m objects, $m > 0$ & 'n' boxes where $m > n$ then if we want to put the objects in 'n' boxes then at least one box will contain _____ object.
a) No b) Only one
c) More than one d) None of these

7) If $R = A \times B$ then the relation R is known as _____.
a) Inverse relation b) Universal relation
c) Equivalence relation d) Partial Ordering relation

8) A function can be represented as _____.
a) Arrow Diagram b) Tabular Form
c) Formula Form d) All of the above

Q.2 Answer any Four of the following: **08**

a) Define Relation.

b) Solve the recurrence relation $a_r + 5a_{r-1} + 6a_{r-2} = 0$

c) State addition principle.

d) Define antisymmetric relation.

e) Define partial ordering relation.

f) Find the cartesian product $A \times B$ for given set $A = \{1, 2, 3, 4, \}, B = \{p, q, r\}$

Q.3 Write short notes on any Two of the following. **08**

a) State and prove Principle of Inclusion-Exclusion for three set.

b) Define the following

i) Function ii) Injective function

iii) Surjective function iv) Bijective function

c) Check whether the given relation is equivalence or not

xRy iff x-y is an even integer.

Q.4 Answer any Two of the following **08**

a) If $f: A \to B: f(x) = 2x - 5$ & $g: B \to C: g(x) = 2x + 7$
Then find $fof,\ fog, gof,\ gog$.

b) Among the integer 1 to 300

i) Find how many are not divisible by 3 not by 5?

ii) Find how many are not divisible by 3 not by 7?

c) For the given relation $R = \{(1,1), (1,2), (2,1), (2,2), (2,3), (2,4), (3,4), (4,1)\}$ on $A = \{1,2,3,4\}$

i) find matrix representation of relation

ii) Draw a digraph of relation

iii) Find indegree and outdegree of each element

Q.5 Answer any One of the following **08**

a) Solve the recurrence relation $a_r - 3a_{r-1} + 3a_{r-2} + 6a_{r-3} = 0$

b) Define transitive closure.
Let $R = \{(a, a), (a, c), (b, b), (b, c), (c, a), (c, d), (d, a)\}$ be a relation on set $A = \{a, b, c, d\}$ find transitive closure by using Warshall's algorithm.

SLR-GD-17

Seat No.	

Set P

B.Sc. (E.C.S) (Semester - II) (New) (CBCS) Examination: March/April-2024
Digital Electronics and Microprocessor (ECS1208)

Day & Date: Saturday, 18-05-2024 Max. Marks: 40
Time: 09:00 AM To 11:00 AM

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks
3) Draw necessary diagrams whenever necessary.
4) Non programmable calculators are allowed.

Q.1 Multiple Choice Questions. **08**

1) 8085 has _____ bit address bus.
a) 14 b) 16
c) 20 d) 40

2) 7402 is _____ gate.
a) AND b) OR
c) NOR d) NOT

3) 1:4 is _____.
a) Multiplexer b) Demultilexer
c) Encoder d) Decoder

4) For construction of counter _____flip flop is used.
a) MSJK b) D
c) RS d) T

5) _____ IC is used as hex inverter.
a) 7432 b) 7402
c) 7404 d) 7400

6) IN is _____ type instruction.
a) Arithmetic b) Data transfer
c) Logical d) Branch

7) VCC is connected to pin _____ of 8085.
a) 20 b) 1
c) 40 d) 21

8) 3 bit synchronous counter uses _____ no of flip flop.
a) 1 b) 2
c) 3 d) 4

Q.2 Answer Any Four of the following. **08**

a) Define demultiplexer
b) Write any four features of 8085.
c) Draw logical diagram of half adder.
d) Explain MOD 2 counter.
e) Write function of PC and SP registers.
f) Explain any two flags of 8085.

Q.3 Write Short Notes on Any Two of the following. **08**

a) Explain MOD 10 counter.
b) Explain clocked RS flip flop.
c) Explain arithmetic instruction's of 8085.

Q.4 Answer Any Two of the following. **08**

a) Explain pin function NOT and XOR gate.
b) Explain two and three byte instruction of 8085.
c) Explain MSJK flip flop with block diagram.

Q.5 Answer Any One of the following. **08**

a) Explain SISO, SIPO shift registers.
b) Explain internal architecture of 8085 microprocessor.

SLR-GD-18

Seat No.	

Set P

B.Sc. (ECS) (Semester - II) (New) (CBCS) Examination: March/April-2024
Introduction to Microcontroller and Embedded System (ECS1209)

Day & Date: Monday, 20-05-2024 Max. Marks: 40
Time: 09:00 AM To 11:00 AM

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.
3) Draw neat diagrams and give equations wherever necessary.
4) Use of logarithmic table and calculator is allowed.
(At. Wts.: H=1, C=12, O=16, N=14, Na=23, Cl=35.5)

Q.1 Multiple Choice Questions. **08**

1) 8051 is _____ bit microcontroller.
a) 8 b) 16
c) 4 d) 19

2) Maximum external memory can be connect to 8051 _____.
a) 64 k b) 8 k
c) 128 byte d) 4 k

3) To access external memory pin EA connect to _____.
a) gnd b) +vcc
c) None d) Both a and b

4) _____ port required Pull-Up register.
a) Port 0 b) Port 1
c) Port 2 d) Port 3

5) _____ port is a mono function port.
a) 0 b) 1
c) 2 d) 3

6) _____ port used as lower address port.
a) 0 b) 1
c) 2 d) 3

7) Bit addressable area in 8051 is _____.
a) 20 to 2k b) 0 to 7f
c) 4k d) 7k

8) _____ register used to indicate flags.
a) tmod b) PSW
c) scon d) None of these

Q.2 Answer the following Question. (Any Two) **08**

a) Define Embedded System.
b) Define Addressing Mode.
c) Define Instruction.
d) State application of 8051 microcontroller.
e) State advantage of embedded system.
f) Define timer

Q.3 Answer the following Questions. (Any Two) **08**

a) Alternative function of Port 3.
b) Internal memory of 8051.
c) Flash magic tools.

Q.4 Answer the following Questions. (Any Two) **08**

a) Explain types of embedded system.
b) Differentiate between microprocessor and microcontroller.
c) Write features of 8051.

Q.5 Answer the following Questions. (Any One) **08**

a) Draw and explain a block diagram of 8051.
b) Explain basic concept of design of microcontroller based system.

SLR-GD-19

Seat No.	

Set P

B.Sc. (E.C.S.) (Semester - III) (New) (CBCS) Examination: March/April-2024
Data Structure using C++-I (ECS1301)

Day & Date: Wednesday, 24-04-2024 Max. Marks: 40
Time: 9:00 AM To 11:00 AM

Instructions: 1) All questions are compulsory.
2) Draw neat diagrams and give equations wherever necessary.
3) Figures to the right indicate full marks.
4) Use of logarithmic table and calculator is allowed.

Q.1 Choose the correct alternative. **08**

1) Which of the following is not the part of ADT description?
a) Data b) Operations
c) Both of these d) None of these

2) Which data structure allows deleting data elements from and inserting at rear?
a) Queue b) Stack
c) List d) None of these

3) Which of the following data structure is linear type?
a) Graph b) Trees
c) binary tree d) Stack

4) The disadvantage in using a circular linked list is _____.
a) It is possible to get into infinite loop
b) last node points to first node
c) time consuming
d) requires more memory space

5) The operation which is processing each element in a list is known as _____.
a) sorting b) merging
c) inserting d) traversing

6) In a priority queue, insertion and deletion takes place at _____.
a) front, rear end b) only at rear end
c) only at front end d) any position

7) linked list uses _____.
a) random memory allocation b) static memory allocation
c) fixed memory allocation d) Dynamic memory allocation

8) The postfix form of the expression (A + B)∗(C∗D – E)∗F / G is _____.
a) ab + cd∗e – fg / ∗∗ b) / ab + cd ∗ e – f ∗∗g /
c) ab + cd∗ e – ∗f ∗ g / d) ab + cde ∗ – ∗ f ∗g /

Q.2 Answer any Four of the following. **08**

a) Explain the concept of Recursion with suitable example?
b) What do you mean by Queue?
c) State the characteristics of an algorithm.
d) What do you mean be Data Structure?
e) State the applications of queue.
f) What is Deque? Give one example.

Q.3 Write short notes on any Two of the following. **08**

a) Multidimensional array.
b) Circular linked list.
c) Divide and Conquer.

Q.4 Answer any Two of the following. **08**

a) What do you mean by linked list? Explain various operations Associated with linked list.
b) Differentiate between static queue and dynamic queue.
c) Write an algorithm for conversion of infix expression to prefix expression.

Q.5 Answer any one of the following. **08**

a) Write a program to implement dynamic STACK and perform the following. Operation:
1) PUSH
2) POP
3) Display

b) What do you mean by ADT? Explain queue as an ADT.

SLR-GD-20

Seat No.	

Set P

B.Sc. (E.C.S) (Semester - III) (New) (CBCS) Examination: March/April-2024
Linux OS and Shell Scripting (ECS1302)

Day & Date: Thursday, 25-04-2024 Max. Marks: 40
Time: 09:00 AM To 11:00 AM

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Q.1 Choose the correct alternatives from the options. **08**

1) _____ command used to change the owner of a file.
a) chgrp b) chown
c) chmod d) set

2) Linux operating system supports _____.
a) Multi User b) Multi Process
c) Multi-Tasking d) All of the above

3) The heart of Linux operating system is _____.
a) Kernel b) Shell
c) Terminal d) Command

4) _____ Command is used to print the current working directory.
a) pwd b) echo $PWD
c) Both A and B d) None of these

5) The command interpreter is also called the_____.
a) Prompt b) Kernel
c) Shell d) Command

6) Which of the following is not a communication command?
a) Write b) mesg
c) mail d) grep

7) _____ is the extension of Shell Program file.
a) .Exe b) .Sh
c) .Dd d) .Cc

8) _____ is a sequence of procedures and functions.
a) Object file b) Source file
c) Text file d) None of the above

Q.2 Answer any Four of the following. **08**

a) What is Shell in Linux OS?
b) Define term Data Block
c) What is Filter in Linux?
d) Define the term piping?
e) Define Boot Loader?
f) What is use of FTP protocol?

Q.3 Write short notes on any Two of the following. **08**

a) Write note on File and Directory permissions.
b) Vi Text Editors
c) LILO Boot Loader

Q.4 Answer any Two of the following. **08**

a) Differentiate in between Windows OS and Linux OS?
b) Explain printing the files commands lpr and lpq with example.
c) What is Shell Scripts? Explain Control and Loop structure in Shell Programming.

Q.5 Answers any One of the following. **08**

a) Define System Administrator and State roles of System Administrator?
b) Explain Architecture of Linux system with different feature of Linux?

SLR-GD-21

Seat No.	

Set P

B.Sc. (E.C.S.) (Semester - III) (New) (CBCS) Examination: March/April-2024
Software Engineering (ECS1303)

Day & Date: Friday, 26-04-2024 Max. Marks: 40
Time: 09:00 AM To 11:00 AM

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Q.1 Multiple choice questions **08**

1) If requirements are easily understandable and defined, which model is best suited?
a) Waterfall model b) Prototyping model
c) Spiral model d) None of the above

2) In _____ every non-key element is transitively dependent on the primary key.
a) 1 NF b) 2 NF
c) 3 NF d) All of these

3) _____ is not a phase of Prototyping Model.
a) Quick Design b) Coding
c) Prototyping Refinement d) Engineer Product

4) In ERD, if an attribute can be split into components, then it is called as _____.
a) Composite attribute b) Derived attribute
c) Multivalued attribute d) Stored attribute

5) The incremental model of software development is _____.
a) A reasonable approach when requirements are well defined.
b) A good approach when a working core product is required quickly.
c) The best approach to use for projects with large development teams.
d) A revolutionary model that is not used for commercial products.

6) If information is not collected from multiple people or individual then from the fact finding methods _____ method is used.
a) Record review b) Observation
c) Interview d) None of these

7) The data Flow Diagram is the basic component of _____ system.
a) Conceptual b) Logical
c) Physical d) None of these

8) Data dictionary is also called as _____.
a) Catalog b) Central repository
c) Both a & b d) None of these

Q.2 Answers any Four of the following. **08**

a) Define coding standards.
b) Define Data flow Diagram.
c) What is the difference between structured and unstructured interview?
d) What is System?
e) What is entity?
f) Write down any four Advantages of Waterfall Model.

Q.3 Write short notes on any Two of the following. **08**

a) Explain Prototyping Model in detail.
b) Explain Open system and Closed system.
c) Explain Software Review Techniques in detail.

Q.4 Answers any Two of the following. **08**

a) Explain fact finding techniques.
b) Explain any eight qualities of software.
c) Explain Agile model in detail.

Q.5 Answers any One of the following. **08**

a) What is Normalization? Explain up to 5NF.
b) What is Decision table? Explain its types with example.

SLR-GD-22

Seat No.	

Set P

B.Sc. (E.C.S.) (Semester - III) (New) (CBCS) Examination: March/April-2024
Database Management System – I (ECS1304)

Day & Date: Saturday, 27-04-2024 Max. Marks: 40
Time: 09:00 AM To 11:00 AM

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Q.1 Multiple choice questions **08**

1) If a set is a collection of values given by the select clause, The _____ connective tests for set membership.
a) within b) include
c) under d) in

2) Relational Algebra does not have _____ operator.
a) Select b) Project
c) Aggregation d) Union

3) _____ operator tests column for absence of data.
a) NOT Operator b) Exists Operator
c) IS NULL Operator d) None of the above

4) _____ model describes entities, relationship and attributes.
a) Functional b) Relational
c) Network d) E-R model

5) Specialization is _____ process.
a) Bottom up b) Top Down
c) Left Right d) None of the above

6) Grant and revoke are _____ statements.
a) DDL b) TCL
c) DCL d) DML

7) _____ is used to represent the relationship between tables.
a) Primary key b) Foreign Key
c) Check Key d) Child Key

8) Which SQL function is used to count the number of rows in a SQL query?
a) COUNT() b) NUMBER()
c) SUM() d) COUNT(*)

Q.2 Answers any Four of the following. **08**

a) Define order by clause with example.
b) Write down syntax & example of create table command.
c) What is view?
d) What are the types of data models?
e) What are the advantages of DBMS?
f) What is entity?

Q.3 Write short notes on any Two of the following. **08**

a) Explain the Group by and having clause with example.
b) What is DDL? Explain Alter commands with example.
c) Explain difference between DBMS and RDBMS.

Q.4 Answers any Two of the following. **08**

a) Explain any eight date and time function with example.
b) Explain Limitations of traditional file system.
c) Explain aggregate functions with examples.

Q.5 Answers any One of the following. **08**

a) What is sub query? Explain types of sub query with example.
b) Explain Relational Algebra operations with example.

SLR-GD-23

Seat No.		Set	P

B.Sc. (E.C.S.) (Semester - III) (New) (CBCS) Examination:March/April-2024
Probability Theory (ECS1305)

Day & Date: Monday, 29-04-2024 Max. Marks: 40
Time: 09:00 AM To 11:00 AM

Instructions: 1) All questions are compulsory.
2) Draw neat diagrams and give equations wherever necessary.
3) Figures to the right indicate full marks**.**
4) Use of logarithmic table and calculator is allowed.

Q.1 Choose the correct alternative. **08**

1) If the p.d.f. of continuous r.v. X is $f(x) = 1/2$, if $0 < X < 2$; then $E(X) =$ _____.
a) -1 b) 0
c) 0.5 d) 1

2) In case of continuous r.v. probability associated with individual point is always _____.
a) one
b) zero
c) real number that lies between 0 & 1
d) None of these

3) _____distribution does not have additive property.
a) Binomial b) Exponential
c) Poisson d) Normal

4) A r.v.X has $E(X) = V(X)$ always then X has _____ distribution.
a) Binomial b) Poisson
c) Normal d) None of these

5) If $X \to B(10, 0.3)$then $V(X) =$ _____.
a) 2.10 b) 3.10
c) 3.00 d) 2.00

6) A r.v. denoting number of seeds germinated out of 15 planted seeds follows _____ distribution.
a) Uniform b) Poisson
c) Normal d) Binomial

7) Variance of any constant is always _____.
a) zero b) constant
c) itself d) one

8) How many different words can be formed using any three letters of the words GANESH?
a) 720 b) 360
c) 210 d) 120

Q.2 Answer any four of the following. **08**

a) Define term discrete r.v. X.

b) Define Uniform distribution.

c) If a discrete r.v.X follows Binomial distribution with parameter $n = 10$ and $p = 0.4$ find mean and variance of the r.v. X

d) Define simple space.

e) State Baye's theorem.

f) Find the value of 'k' if following is the p.m.f. of discrete r.v. X.

X	2	4	6	8
P(x)	3k	2k	2k	0.2

Q.3 Answer any two of the following. **08**

a) Define addition principle and multiplication principle of counting with example.

b) Write down the properties of c.d.f. for continuous random variable.

c) Effect of change of origin and scale on expectation, i.e. $E(aX + b) = a\,E(X) + b$

Q.4 Answer any two of the following. **08**

a) If X is r.v. with p.d.f.

$f(x) = 6x(1-x) \quad ; 0 < x < 1$
$\quad = 0 \quad ; otherwise$

Find mean and variance of X.

b) Show that, $P(A') = 1 - P(A)$

c) For the following probability distribution of discrete r.v. X. Find V(X).

X	2	4	6	8	10
P(x)	0.3	0.10	0.3	0.2	0.1

Q.5 Answer any one of the following. **08**

a) The p.d.f. of continuous r.v.x is,

$f(x) = cx \quad ; \; 0 < x < 1$
$\quad = 0 \quad ; \; otherwise$

Find: i) c ii) c.d.f. iii) E(x) iv) V(x)

b) Define Binomial distribution. State its additive property, mean and variance, and also writ real life situation examples.

SLR-GD-24

Seat No.		Set	P

B.Sc. (E.C.S.) (Semester - III) (New) (CBCS) Examination: March/April-2024
Data Science with Python (ECS1306)

Day & Date: Tuesday, 30-04-2024 Max. Marks: 40
Time: 09:00 AM To 11:00 AM

Instructions: 1) All questions are compulsory.
2) Draw neat diagrams and give equations wherever necessary.
3) Figures to the right indicate full marks.
4) Use of logarithmic table and calculator is allowed.
(At. Wts.: H=1, 0=12, O=16, N= 14, Na =23, Cl = 35.5)

Q.1 Multiple choice questions. **08**

1) Using ndim we can find _____.
a) We can find the dimension of the array
b) Size of array
c) Operational activities on Matrix
d) None of the mentioned above

2) A Data frame object is value mutable.
a) True b) False

3) Amongst which of the following is / are used to analyze the data in pandas.
a) Dataframe b) Series
c) Both A and B d) None of the mentioned above

4) Amongst which of the following can be used to create various inputs using pandas DataFrame.
a) Lists, dict
b) Series
c) Numpy ndarrays and Another DataFrame
d) All of the above mentioned

5) Indexing in Series is similar to that for NumPy arrays.
a) True b) False

6) To access the element of a tuple through indexing which symbol is used?
a) { } b) []
c) () d) None

7) What will be the output of the following code,
T1 = (“hello”,” everyone”,’’include”,’’welcomes”,’’you”,’’all”)
Print (Tl [0], Tl [-2])
a) Hello b) Hello all
c) Hello you d) Error

8) What does count () function do in python tuples?
a) It gives you the sum of the entire tuple
b) It counts the occurrence of an element
c) It gives the sum of all the integers present inside the tuples
d) None of above

Q.2 Answer any Four of the following. **08**

a) What are data security issues?
b) What are datatypes in numpy?
c) What is outlier analysis?
d) What is heatmap?
e) What is filtering?
f) Give example of list and tuple in pandas?

Q.3 Write short notes on any Two of the following. **08**

a) Explain applications of data science.
b) Explain data frames with operation and example.
c) Write a program of transposing array.

Q.4 Answer any Two of the following. **08**

a) Write a program of filtering in pandas.
b) Explain numpy indexing and slicing with example.
c) Write a program of plot.

Q.5 Answer any One of the following. **08**

a) Explain mathematical method of unique sorting with example.
b) Explain prediction by using ridge regression with example.

SLR-GD-25

Seat No.		Set	P

B.Sc. (E.C.S.) (Semester - III) (New) (CBCS) Examination: March/April-2024
Web Development Using PHP

Day & Date: Thursday, 02-05-2024 Max. Marks: 80
Time: 09:00 AM To 12:00 PM

Instructions: 1) All questions are compulsory.
2) Draw neat labelled diagrams wherever necessary.
3) Figures to the right indicate full marks.

Q.1 A) Choose the correct alternatives from the options. **10**

1) Which of the following is the correct syntax to write a PHP code?
a) <?php ?> b) < php >
c) < ? php ?> d) <? ?>

2) How to define a function in PHP?
a) functionName(parameters) {function body)
b) function {function body}
c) function functionName(parameters) {function body}
d) data type functionName(parameters) {function body}

3)
```
<?php
$x = 5;
$y = 10;
function fun ()
{      $y = $GLOBALS[ 'x' ] + $GLOBALS[ 'y' ];
}
fun ();
echo $y;
?>
```
a) 5 b) 10
c) 15 d) None of these

4) What will be the output of the following PHP code?
```
<?php
$num = 1;
$num1 = 2;
print $num . "+". $num1;
?>
```
a) 3 b) 1+2
c) 1.+.2 d) Error

5) Which one of the following functions will convert a string to all uppercase?
a) strtoupper() b) uppercase()
c) str_uppercase() d) struppercase()

6) Which of the looping statements is/are supported by PHP?
i) for loop
ii) while loop
iii) do-while loop
iv) foreach loop
a) Only iv) b) i) and ii)
c) i), ii) and iii) d) i), ii), iii) and iv)

7) Which function returns an array consisting of associative key/value pairs?
a) count() b) array_count()
c) array_count_values() d) count_values()

8) Which one of the following PHP function is used to determine a file's last access time?
a) filetime() b) fileatime()
c) fileltime() d) filectime()

9) Which one of the following functions can be used to concatenate array elements to form a single delimited string?
a) explode() b) implode()
c) concat() d) concatenate()

10) Which one of the following statements instantiates the mysqli class?
a) mysqli = new mysqli() b) $mysqli = new mysqli()
c) $mysqli->new.mysqli() d) mysqli->new.mysqli()

B) One sentence answer/one word answer. **06**

1) What is basic syntax of PHP?
2) What is Variables in PHP?
3) Explain the syntax for 'do_while' loop with example.
4) What is Indexed Array in PHP?
5) How to concatenate two strings in PHP?
6) Explain $_FILES variable in PHP?

Q.2 Answer the following. (Any Eight) **16**

a) What is arithmetic operators?
b) List out different functions used for comparing string with example.
c) What is multidimensional array? Explain with example.
d) Explain Dynamic website.
e) Explain Include () function.
f) Explain if...else statement
g) Explain Insert mysql query
h) Explain print_r() function.
i) What is session?
j) What is form validation?

Q.3 A) Answer the following (Any Two): **10**

1) Explain parameter passing techniques in detail.
2) Explain soundex() and metaphone().
3) What is the use of cookies in PHP? Explain with example.

B) Short note/solve. **06**

Explain MySQL Architecture.

OR

Write note on comparing and joining strings.

Q.4 A) Answer the following. (Any Two) **08**

1) Explain multidimensional array with proper examples.
2) Explain $_GET and $_POST variable.
3) Write a program to find prime number or not.

B) Describe/Explain/Solve **08**

What is form validation? Explain client and server side validation.

OR

Explain MySQL Architecture.

Q.5 Answer the following. (Any Two) **16**

a) What is Session? Explain session state management in detail with example.

b) Write a php script for student database in MySQL with multiple queries (Insert, Update, Delete, and Select).

c) Explain following variables:
i) $_POST ii) $_REQUEST iii) $_ENV iv) $_FILES.

SLR-GD-26

Seat No.		Set	P

B.Sc. (E.C.S.) (Semester - III) (Old) (CBCS) Examination: March/April-2024
Data Structure using C++-I (ECS0301)

Day & Date: Wednesday, 24-04-2024 Max. Marks: 40
Time: 9:00 AM To 11:00 AM

Instructions: 1) All questions are compulsory.
2) Draw neat diagrams and give equations wherever necessary.
3) Figures to the right indicate full marks.
4) Use of logarithmic table and calculator is allowed.

Q.1 Choose correct alternatives. **08**

1) Which of the following data structure is required to convert arithmetic expression in infix to its equivalent postfix notation?
a) Queue b) Linked list
c) Binary search tree d) None of above

2) New nodes are added to the _____ of the queue.
a) Front b) Back
c) Middle d) Both A and B

3) Which of the following is an application of stack?
a) Finding factorial b) Tower of Hanoi
c) Infix to postfix d) All of the above

4) Which of the following is non-liner data structure?
a) Stacks b) List
c) Strings d) Trees

5) The two key measures to find efficiency of an algorithm are:
a) Time and space b) Capacity and Complexity
c) Data and space d) Processor and memory

6) The operation of processing each element in the list is known as _____.
a) sorting b) merging
c) traversing d) inserting

7) In a circular linked list _____.
a) Components are linked in random manner
b) There is no beginning and no end
c) Components are arranged hierarchically
d) Forward and backward traversal within the list is permitted

8) _____ form of access is used to add and remove nodes from a queue.
a) LIFO, Last In First Out b) FIFO, First In First Out
c) Both a and b d) None of these

Q.2 Answer any Four of the following. **08**

a) Write a brief note on classification of data structure.
b) What are the benefits of dynamic queue?
c) What is Dqueue?
d) Which operation can perform on a linked list?
e) What are the limitations of static stack?
f) Explain backtracking.

Q.3 Write short notes any Two of the following. **08**

a) Big-O notation.
b) Characteristics of an algorithm.
c) Multidimensional array.

Q.4 Answer any Two of the following. **08**

a) What is linked list? Explain types of linked list.
b) Write a program to reverse an array.
c) Difference between array and linked list.

Q.5 Answer any one of the following. **08**

a) What do you mean by priority queue? How it is differ from linear queue? Give one example.
b) Write a program to implement STACK using array and perform following operation on queue.
1) PUSH
2) POP
3) Display

SLR-GD-27

Seat No.		Set	P

B.Sc. (E.C.S) (Semester - III) (Old) (CBCS) Examination: March/April-2024
Data Structure using C++ - II (ECS0302)

Day & Date: Thursday, 25-04-2024 Max. Marks: 40
Time: 09:00 AM To 11:00 AM

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.
3) Draw neat labeled diagrams and give equations wherever necessary.
4) Use of logarithmic table and calculator is allowed.

Q.1 Choose the correct alternatives from the options. **08**

1) Which of the following is false?
a) Tree is a non-linear data structure
b) A tree contains a cycle
c) A tree with n modes contains (n-1) edges
d) A tree is a connected graph

2) You have to sort a list L consisting of a sorted list followed by a few 'random' elements. Which of the following sorting methods would be especially suitable for such a task?
a) Bubble sort b) Selection sort
c) Quick Sort d) Insertion Sort

3) Which two of the following are equivalent for an undirected graph G?
i) G is a tree
ii) There is atleast one path between any two distinct vertices of G
iii) G contains no cycles and has (n-1) edges
iv) G has n edges
a) (i) and (ii) b) (i) and (iii)
c) (i) and (iv) d) (ii) and (iii)

4) The quick sort algorithm exploit _____ design technique.
a) Greedy b) Dynamic programming
c) Backtracking d) Divide and conquer

5) Preorder is also known as _____.
a) Depth first order b) Breadth first order
c) Topological order d) Linear order

6) In what tree, for every node the height of its left subtree and right subtree differ atleast by one?
a) Binary search tree b) AVL tree
c) Threaded binary tree d) Complete tree

7) A graph with all vertices having equal degree is known as a _____.
a) Multi Graph b) Regular Graph
c) Simple Graph d) Complete Graph

8) What is the number of unlabeled simple directed graph that can be made with 1 or 2 vertices?
a) 2 b) 4
c) 5 d) 9

Q.2 Answer any Four of the following. **08**

a) Differentiate between tree and graph.
b) State the applications of graph.
c) What are the types of tree traversal methods? Give example.
d) What is binary expression tree?
e) Define the term
1) searching
2) sorting
f) Differentiate between leaf node and non-leaf node.

Q.3 Write short notes on any Two of the following. **08**

a) Indexed sequential search
b) Heap tree
c) Applications of graph

Q.4 Answers any Two of the following. **08**

a) Write an algorithm for insertion sort. Explain with suitable example.
b) Explain BFS with example.
c) What are the types of binary tree.

Q.5 Answers any One of the following. **08**

a) Write a program to insert and search an element in a binary search tree.
b) Write a brief note on Hashing. Explain Hash functions in detail.

SLR-GD-28

Seat No.		Set	P

B.Sc. (E.C.S.) (Semester - III) (Old) (CBCS) Examination: March/April-2024
Software Engineering (ECS0303)

Day & Date: Friday, 26-04-2024 Max. Marks: 40
Time: 09:00 AM To 11:00 AM

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.
3) Draw neat diagrams and give equations wherever necessary.
4) Use of logarithmic table and calculator is allowed.
(At. Wts.: H=1, C=12, O=16, N=14, Na=23, Cl=35.5.

Q.1 Multiple Choice Questions. **08**

1) CASE stands for _____.
a) Computer-Aided Software Engineering
b) Control Aided Science and Engineering
c) Cost Aided System Experiments
d) None of the mentioned

2) What is a Functional Requirement?
a) Specifies the tasks the program must complete
b) Specifies the tasks the program should not complete
c) Specifies the tasks the program must not work
d) All of the mentioned

3) _____ is a software development life cycle model that is chosen if the development team has less experience on similar projects.
a) Iterative Enhancement Model b) RAD
c) Spiral d) Waterfall

4) Who proposed the spiral model?
a) Barry Boehm b) Pressman
c) Royce d) IBM

5) What does SDLC stands for?
a) System Design Life Cycle
b) Software Design Life Cycle
c) Software Development Life Cycle
d) System Development Life cycle

6) Who is the father of Software Engineering?
a) Margaret Hamilton b) Watts S. Humphrey
c) Alan Turing d) Boris Beizer

7) Software is defined as _____.
a) set of programs, documentation & configuration of data
b) set of programs
c) documentation and configuration of data
d) None of the mentioned

8) What is Software Engineering?
a) Designing a software
b) Testing a software
c) Application of engineering principles to the design a software
d) None of the above

Q.2 Answer any Four of the following. **08**

a) What is software Engineering?
b) Define system software.
c) What is normalization?
d) What is effort estimation?
e) What are the roles of software analyst?
f) Define software.

Q.3 Write short notes on any Two of the following. **08**

a) Spiral model.
b) Data flow diagram.
c) Explain conversion methods.

Q.4 Answer any Two of the following. **08**

a) Explain testing fundamentals.
b) Write types of maintenance.
c) Explain types of review techniques

Q.5 Answer any One of the following. **08**

a) Explain types of dependencies.
b) Explain software risk management.

SLR-GD-29

Seat No.	

Set P

B.Sc. (E.C.S.) (Semester - III) (Old) (CBCS) Examination: March/April-2024
Software Testing (ECS0304)

Day & Date: Saturday, 27-04-2024 Max. Marks: 40
Time: 09:00 AM To 11:00 AM

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Q.1 Multiple choice questions. **08**

1) Software testing which is done without planning and Documentation is known as _____.
a) adhoc testing b) unit testing
c) regression testing d) functional testing

2) Which of the following testing is not another name of white box testing?
a) Structural testing b) Behavioral testing
c) Glass box testing d) None of the mentioned

3) What type of review requires formal entry and exit criteria, including metrics?
a) management review b) inspection
c) walkthrough d) post project review

4) In which environment we can performed the Alpha testing?
a) User's end b) Developer's end
c) User's and developer's end d) None of the above

5) Which of the following is not a part of STLC (Software Testing Life Cycle)?
a) Testing Planning b) Requirement Gathering
c) Test Design d) Testing closure

6) Which of the following is not a type of incremental testing approach?
a) big-bang b) top down
c) bottom up d) functional incrimination

7) Which of the following is not part of the Test document?
a) Test Case
b) Requirements Traceability Matrix [RTM]
c) Test strategy
d) Project Initiation Note [PIN]

8) Test cases are designed during:
a) test recording b) test configuration
c) test planning d) test specification

Q.2 Answer any Four of the following. **08**

a) What is Soak Testing?
b) What is Decision Table?
c) What is the difference between Defect, Error?
d) What is Load Testing?
e) What is Buddy Testing?
f) What is the Alpha & Beta testing?

Q.3 Write short notes/Answer on any Two of the following. **08**

a) What is Software Testing? Importance or need of software testing.
b) Explain Defect Logging and Tracking.
c) Explain Static Techniques in WBT.

Q.4 Answer any Two of the following. **08**

a) Explain Software Test Life Cycle in detail.
b) Design test case for Online Purchase Order in detail.
c) Differences between WBT & BBT Testing.

Q.5 Answer any One of the following. **08**

a) Explain Performance Testing and its types.
b) Explain Boundary Value Analysis, State Transition and Cause Effective Graph in BBT.

SLR-GD-30

Seat No.		Set	P

B.Sc. (E.C.S.) (Semester - III) (Old)(CBCS) Examination: March/April-2024
Probability Theory–I(ECS0305)

Day & Date: Monday, 29-04-2024 Max. Marks: 40
Time: 09:00AM To 11:00 AM

Instructions: 1) All questions are compulsory.
2) Draw neat diagrams and give equations wherever necessary.
3) Figures to the right indicate full marks.
4) Use of logarithmic table and calculator is allowed.

Q.1 Choose the correct alternative. **08**

1) A coin is tossed one times. If A: getting two heads, then A is called _____ event.
   a) impossible b) certain
   c) sure d) simple

2) If B is subset of A then $P(B/A) =$ _____.
   a) 1 b) $P(A)/P(B)$
   c) $P(B)/P(A)$ d) none of these

3) _____ distribution does not have additive property.
   a) Binomial b) Normal
   c) Poisson d) Exponential.

4) A r.v X has $E(X) > V(X)$ always then X has _____ distribution.
   a) Binomial b) Poisson
   c) Normal d) None of these

5) Let $P(A) = 0.8, P(B) = x$ if A and B are exhaustive events then x= _____.
   a) 0.2 b) 0.5
   c) 1 d) 0.4

6) A r.v. denoting number of seeds germinated out of 15 planted seeds follows _____ distribution.
   a) Binomial b) Poisson
   c) Normal d) Uniform

7) Expectation of any constant is always _____.
   a) zero b) constant
   c) itself d) one

8) How many different words can be formed using any four letters of the words GANESH?
   a) 720 b) 360
   c) 210 d) 120

Q.2 Answer any four of the following. **08**

a) Define term Combination.

b) Define Poisson distribution.

c) If a discrete r.v. X follows Binomial distribution with parameter $n = 10$ and $p = 0.4$ find mean and variance of the r.v.X

d) Define mutually exclusive event.

e) Define Normal distribution.

f) Find the value of 'k' if following is the p.m.f. of discrete r.v. X.

X	5	10	15	20
P(x)	3k	2k	4k	0.2

Q.3 Answer any two of the following. **08**

a) Define addition principle of counting with example.

b) Three coins are tossed at a time find the probability that
A: getting head on first coin, B: getting head on second coin, C=At least one head occure.

c) Effect of change of origin and scale on variance, i.e. $V(aX + b) = a^2V(X)$

Q.4 Answer any two of the following. **08**

a) Write down the properties of c.d.f. for continuous random variable.

b) Show that, $0 \leq P(A) \leq 1$

c) For the following probability distribution of discrete r.v. X. Find $V(X)$.

X	2	4	6	8	10
P(x)	0.3	0.10	0.3	0.2	0.1

Q.5 Answer any one of the following. **08**

a) An unbiased coin is tossed 3 times. Let A, B and C are events that head occurs at 1st, 2nd and 3rd toss respectively. Discuss the independence of the events A, B and C.

b) Define Poisson distribution. State its additive property, mean and variance, and also writ real life situation examples.

SLR-GD-31

Seat No.	

Set P

B.Sc. (E.C.S.) (Semester - III) (Old) (CBCS) Examination: March/April-2024
Probability Theory-II (ECS0306)

Day & Date: Tuesday,30-04-2024 Max. Marks: 40
Time: 09:00 AM To 11:00 AM

Instructions: 1) All questions are compulsory.
2) Draw neat diagrams and give equations wherever necessary.
3) Figures to the right indicate full marks.
4) Use of logarithmic table and calculator is allowed.

Q.1 Multiple choice question **08**

1) The normal probability curve is _____.
a) Bell shaped b) Symmetric
c) Mesokurtic d) All of these

2) If the p.d.f. of continuous r.v. X is $f(x) = 1/2, if\ 0 < X < 2$; then $E(X) =$ _____.
a) -1 b) 0
c) 0.5 d) 1

3) Let a continuous r.v. X has p.d.f. $f(x) = c$, if $1 < X < 3$, then value of 'c' is _____.
a) 1 b) 0
c) ½ d) -1

4) If $X \to U[4,16]$ then $V(X) =$ _____.
a) 20 b) 12
c) 10 d) 16

5) Rejecting the null hypothesis when it is true is _____.
a) correct decision b) Type-I error
c) Type-II error d) None of these

6) If X is continuous r.v. with p.d.f. $f(x)$, then $\int_{-\infty}^{\infty} f(x)dx$ is _____.
a) 0 b) 1
c) -1 d) None of these

7) Testing $Ho: \mu 1 = \mu 2$ against $H1: \mu 1 \neq \mu 2$ is _____.
a) one sided left tailed test b) one sided right tailed test
c) two sided test d) none of these

8) In testing of hypothesis; whether the test is one sided or two sided depends on _____.
a) Null hypothesis b) Alternative hypothesis
c) Simple hypothesis d) All of these

Q.2 Answer any four of the following. **08**

a) Define null and alternative hypothesis.
b) Define Normal distribution.
c) If $X \rightarrow Exp(\Theta=5)$ Find mean and variance of X.
d) State any two properties of distribution function of continuous r.v.X.
e) If a continuous r.v. X has Uniform distribution with mean 1 and variance 4/3. Find the value of 'a' and 'b'
f) Define level of significance.

Q.3 Attempt any two of the following. **08**

a) A continuous r.v.X has the p.d.f.

$$f(x) = 5x^4 \quad ; 0 < x < 1$$
$$= 0 \quad ; otherwise$$

Find variance of X

b) Define the terms.
1) Type-I error
2) Type-II error
3) Level of significance

c) Describe the procedure for testing hypothesis $H_0 : p = p0$ against $H_1 : p \neq p0$

Q.4 Answer any two of the following. **08**

a) Define the mathematical expectation and variance of continuous r.v.X.
b) If X is r.v. with p.d.f.

$$f(x) = 6x(1-x) \quad ; 0 < x < 1$$
$$= 0 \quad ; otherwise$$

Find mean and variance of X

c) Describe the procedure for testing hypothesis $H_0 : \mu = \mu_0$ against $H_1 : \mu \neq \mu_0$

Q.5 Answer any one of the following. **08**

a) Suppose the life time of a certain make of T.V. tube is exponentially distributed with mean life time 1600 hrs.
Find
1) The tube will work up to 2400 hrs.
2) The tube will survive after 1000 hrs.

b) Define Normal distribution. State its mean, variance and properties.

SLR-GD-32

Seat No.	

Set P

B.Sc. (E.C.S.) (Semester - III) (Old) (CBCS) Examination: March/April-2024
Introduction to Python Programming (ECS0307)

Day & Date: Thursday, 02-05-2024 Max. Marks: 40
Time: 09:00 AM To 11:00 AM

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Q.1 Multiple choice questions: **08**

1) When will the else part of try-except-else be executed?
   a) always
   b) when an exception occurs
   c) when no exception occurs
   d) when an exception occurs in to except block

2) _____ is used to create an object.
   a) Class b) Constructor
   c) User-defined functions d) In-built functions

3) Python supports the creation of anonymous functions at runtime, using a construct called _____.
   a) pi b) anonymous
   c) lambda d) none of the mentioned

4) Is Python code compiled or interpreted?
   a) Python code is both compiled and interpreted
   b) Python code is neither compiled nor interpreted
   c) Python code is only compiled
   d) Python code is only interpreted

5) What does single-level inheritance mean?
   a) A subclass derives from a class which in turn derives from another class
   b) A single superclass inherits from multiple subclasses
   c) A single subclass derives from a single superclass
   d) Multiple base classes inherit a single derived class.

6) What does the function re.match do?
   a) Matches a pattern at the start of the string
   b) Matches a pattern at any position in the string
   c) Such a function does not exist
   d) None of the mentioned

7) What is returned by math.ceil(3.4)?
   a) 3 b) 4
   c) 4.0 d) 3.0

8) To open a file c:\scores.txt for appending data, we use _____.
   a) outfile = open("c: \\scores.txt", "a")
   b) outfile = open("c: \\scores.txt", "rw")
   c) outfile = open(file = "c:\scores.txt", "w")
   d) outfile = open(file = "c: \\scores.txt", "w")

Q.2 Answer any four of the following. **08**

a) What is PVM?
b) What is constant?
c) What is function?
d) What is class?
e) What is constructor?
f) What is error?

Q.3 Write short notes on any two of the following **08**

a) Explain Anonymous function with example.
b) Write program for to check given year is leap year or not.
c) Explain method overloading with example.

Q.4 Answer any Two of the following. **08**

a) Write a program for User defined Exception
b) What is regular expression? Its advantages
c) Explain difference between function and method.

Q.5 Answer any one of the following **08**

a) Explain features of Python?
b) What is string? It's manipulation with example.

SLR-GD-33

Seat No.	

Set P

B.Sc. (E.C.S.) (Semester - IV) (New) (CBCS) Examination: March/April - 2024
Data Structure using C++ - II (ECS1401)

Day & Date: Friday, 05-04-2024 Max. Marks: 40
Time: 09:00 AM To 11:00 AM

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Q.1 Choose the correct alternatives from the options. **08**

1) Which of following node have only incoming edges but not incoming edges?
a) Source b) Sink
c) Pendant d) Loop

2) We get _____ order of element by applying inorder traversal on binary search tree.
a) Descending b) Ascending
c) Both a and b d) None of These

3) _____ is maximum degree of node of binary tree.
a) 0 b) 1
c) 2 d) log(2)

4) Which of the following data structure is suitable to represent directory structure of computer?
a) Array b) Tree
c) Stack d) Both b & c

5) To sort 10 elements of array by using bubble sort, it requires _____ number of maximum passes.
a) 10 b) 9
c) 11 d) 12

6) Which of the following operation is fast in case of AVL tree?
a) Node retrieval b) Node insertion
c) Node deletion d) All of these

7) Which of the following searching method applied on sorted as well as unsorted data?
a) Linear b) Binary
c) Indexed Sequential d) All of these

8) _____ data structure is used for implementation of BFS graph traversal.
a) Stack b) Queue
c) Priority Queue d) Deque

Q.2 Answer the following questions. (Any Four) **08**

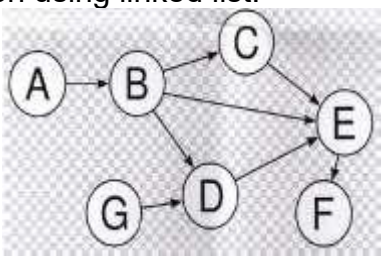
a) What is binary Expression tree?

b) List out applications of graph.

c) Sort the given numbers by ascending order using insertion sort method & show all passes:

20,36,78,54,78,32,12,23

d) Represent following graph using linked list.



e) What is collision in Hashing?

f) Construct binary search tree by considering numbers:

50,78,3,74,68,79,25,10,40,75

Q.3 Write short notes. (Any Two) **08**

a) AVL tree

b) Bubble sort

c) DFS graph traversal

Q.4 Answer the following questions. (Any Two) **08**

a) Write a program to implement an undirected graph using adjacency matrix.

b) Write a program to implement linear search method for sorted data.

c) Explain tree traversal methods with example and operations.

Q.5 Answer the following questions. (Any One) **08**

a) Explain the following operations of graph:

i) AddVertex( ) ii) AddEdge( ) iii) Search( ) iv) DisplayGraph( )

b) Write a menu driven program to implement binary search tree with following operations:

i) Insert( ) ii) Preorder ( ) iii) Inorder( ) iv) Postorder ( )

SLR-GD-34

Seat No.	

Set P

B.Sc. (E.C.S.) (Semester - IV) (New) (CBCS) Examination: March/April-2024
Core Java (ECS1402)

Day & Date: Sunday, 12-05-2024 Max. Marks: 40
Time: 09:00 AM To 11:00 AM

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.
3) Draw neat diagrams and give equations wherever necessary.
4) Use of logarithmic table and calculator is allowed.

Q.1 Choose the correct alternative. **08**

1) Which component is used to compile, debug and execute the java programs?
   a) JDK b) JIT
   c) JRE d) JVM

2) Which of these keywords is used to define interfaces in Java?
   a) intf b) Intf
   c) Interface d) interface

3) What is not the use of "this" keyword in Java?
   a) Referring to the instance variable when a local variable has the same name
   b) Passing itself to the method of the same class
   c) Passing itself to another method
   d) Calling another constructor in constructor chaining

4) _____ is the basic class for all SWING UI components?
   a) Container b) component
   c) JComponent d) None of these

5) Which of these statements is incorrect about Thread?
   a) start() method is used to begin execution of the thread
   b) run() method is used to begin execution of a thread before start() method in special cases
   c) A thread can be formed by implementing Runnable interface only
   d) A thread can be formed by a class that extends Thread class

6) Which of the following is a superclass of every class in Java?
   a) ArrayList b) Abstract class
   c) Object class d) String

7) Which of the following is a type of polymorphism in Java Programming?
   a) Multiple polymorphism
   b) Compile time polymorphism
   c) Multilevel polymorphism
   d) Execution time polymorphism

8) Which of the following is not an OOPS concept in Java?
   a) Polymorphism b) Inheritance
   c) Encapsulation d) Compilation

Q.2 Answer any Four of the following. **08**

1) State four features of java.
2) State two similarities between Interfaces and Classes.
3) Define the term static method with example.
4) What is garbage collection?
5) What do you mean by collection in java?

Q.3 Write short notes on any Two of the following. **08**

1) Abstract class
2) Synchronization
3) Layout managers in swing technology

Q.4 Answer any Two of the following. **08**

1) What is a thread? Describe the complete life cycle of thread.
2) Describe the uses of final and super keywords with respect to inheritance.
3) Write a JAVA program to display Fibonacci series.

Q.5 Answer any One of the following. **08**

1) Explain the following terms with respect to exception handling.
i) try ii) catch iii) throw iv) finally

2) What is file in java? Which operation we can perform on a file? Explain with example.

SLR-GD-35

Seat No.	

Set P

B.Sc. (E.C.S.) (Semester - IV) (New) (CBCS) Examination: March/April-2024
Software Testing (ECS1403)

Day & Date: Wednesday, 10-04-2024 Max. Marks: 40
Time: 09:00 AM To 11:00 AM

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Q.1 Choose the correct alternatives from the options. **08**

1) Which of the following is non-functional testing?
a) Black box testing
b) Performance testing
c) Unit testing
d) None of the mentioned

2) What is testing?
a) Finding broken code
b) Evaluating deliverable to find errors
c) A stage of all projects
d) None of the mentioned

3) _____ is known as a variance from software product specifications.
a) Defects
b) Review
c) Requirement
d) Report

4) Which of the following testing is related to the boundary value analysis?
a) White box and black box testing
b) White-box testing
c) Black box testing
d) None of the above

5) Cyclomatic complexity is?
a) White-box testing
b) Black box testing
c) Grey box testing
d) All of the above

6) Which of the below testing is executed without documentation and planning is known as?
a) Regression Testing
b) Adhoc Testing
c) Unit Testing
d) None of the above

7) What is the best time to perform Regression testing?
a) After the software has been modified
b) As frequently as possible
c) When the environment has been modified
d) Both option a & c

8) Which Test Document is used to define the Exit Criteria of Testing?
a) Defect Report
b) Test Summary Report
c) Test Case
d) Test Plan

Q.2 Answer the following questions. (Any Four) **08**

a) What is Path Coverage Testing?
b) What is Boundary Value Analysis?
c) Define exploratory testing.
d) Define Smoke Testing.
e) Define error.
f) Define Test Report.

Q.3 Write Notes. (Any Two) **08**

a) Acceptance Testing
b) Functional & non-functional testing.
c) Equivalence class Partitioning Testing.

Q.4 Answer the following questions. (Any Two) **08**

a) Different between Manual and Automation Testing.
b) What is defect? Explain bug life cycle.
c) How to write a test case and examples.

Q.5 Answer the following questions. (Any One) **08**

a) What is STLC? Explain Software Testing Life cycle.
b) What is Software Testing? Explain in detail Needs of Software Testing?

SLR-GD-36

Seat No.		Set	P

B.Sc. (E.C.S) (Semester - IV) (New) (CBCS) Examination: March/April-2024
Database Management System – II (ECS1404)

Day & Date: Friday, 12-04-2024 Max. Marks: 40
Time: 09:00 AM To 11:00 AM

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Q.1 Choose the correct alternatives from the options. **08**

1) The initial state of transaction is _____.
a) active state b) final state
c) parallel committed d) aborted state

2) A system is in a _____ state if there exists a set of transactions in which every transaction is waiting for another transaction in the set.
a) Deadlock b) Starved
c) Isolated d) None of the mentioned

3) If a transaction has obtained a _____ lock, it can both read and write on the item.
a) Shared mode b) Exclusive mode
c) Read only mode d) Write only mode

4) Which of the following has a return type in its specification and must return a value specified in that type?
a) Procedure b) Function
c) Package d) None of the above

5) Which type of cursor is automatically declared by Oracle every time an SQL statement is executed?
a) An Implicit b) An Explicit
c) Both a & b d) None of the above

6) Which Exception is also known as Oracle named exception handler?
a) Predefined Exception b) Internal Exception
c) User defined Exception d) None of the above

7) Which of the following is used to define code that is executed / fired when certain actions or event occur?
a) Replace b) Keyword
c) Trigger d) Cursor

8) If a transaction may obtain locks but may not release any locks then it is in _____ phase.
a) Growing phase b) Shrinking phase
c) Deadlock phase d) Starved phase

Q.2 Answers any four of the following. **08**

a) What are %TYPE and %ROWTYPE?
b) What are the attributes of explicit cursor?
c) What is trigger?
d) What is Concurrency Control?
e) List the steps in query processing.
f) What is Schedule?

Q.3 Write short notes on any two of the following. **08**

a) Differentiate between SQL and PL/SQL.
b) Describe the states of transactions with suitable diagram.
c) Explain While..Loop statement in PL/SQL with example.

Q.4 Answers any two of the following. **08**

a) Explain ACID properties of transaction.
b) Differentiate between PL/SQL Function and Procedure.
c) Describe the PL/SQL block structure with example.

Q.5 Answers any one of the following. **08**

a) Explain PL/SQL Package with example.
b) What is deadlock? Explain various methods for handling it.

SLR-GD-37

Seat No.	

Set P

B.Sc. (E.C.S.) (Semester - IV) (New) (CBCS) Examination: March/April-2024
Descriptive Statistics (ECS1405)

Day & Date: Saturday, 13-04-2024 Max. Marks: 40
Time: 09:00 AM To 11:00 AM

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.
3) Use of any type of calculator is allowed.
4) Graph papers are supplied on request.

Q.1 Choose the correct alternatives from the options. **08**

1) If $5x + 8y = 15$ is regression equation of x on y then regression coefficient of it is _____.
a) $8/5$ b) $5/8$
c) $-8/5$ d) None of these

2) In _____ types of classes upper limit of a class is the lower limit of next class.
a) inclusive b) exclusive
c) open-end d) All of these

3) The two regression coefficients b_{yx} and b_{xy} are 0.6 and 1.3 respectively, then value of r_{xy} is _____.
a) 0.3 b) 0.6
c) 0.88 d) 1

4) If X and Y are random variables with Cov $(X, Y) = -130$, S.D. of X is 10 & S.D. of Y is 9 then coefficient of regression of X on Y is _____.
a) 1.3 b) -1.3
c) -1.6 d) None of these

5) The mean and median of a distribution are 10 and 15 respectively, the value of mode becomes _____.
a) 25 b) 15
c) 20 d) None of these

6) If all the observations in the data are equal, the dispersion is _____.
a) zero b) any +ve real number
c) can't say anything d) none of these

7) Few drops of blood taken for diagnosis is an example of _____.
a) SRSWOR b) SRSWR
c) SRS d) None of these

8) If population is heterogeneous, then _____ Sampling method provides most representative sample.
a) SRS b) stratified
c) systematic d) all of these

Q.2 Answer any four of the following. **08**

a) Define Statistical population & sample.

b) The marks obtained by a student in 6 subjects are 67, 56, 59, 60, 72, 48. Find A.M. of marks.

c) Draw and interpret scatter diagrams for $r = 1,\ r = -1$.

d) Find range and coefficient of range for the data 44, 34, 31, 52, 55, 28, 25.

e) Given: $\bar{X} = 53,\ \bar{Y} = 28,\ b_{yx} = -1.5,\ b_{xy} = -0.2$. Find r_{xy}.

f) Find C.V. if $\bar{X} = 48$ & variance $= 81$.

Q.3 Answer any two of the following. **08**

a) Find missing frequency of a class 54-72 from the following data if median is 65.

Class	0-18	18-36	36-54	54-72	72-90	90-108	108-126
Frequency	4	6	12	--	14	9	3

b) Distinguish between absolute & relative measures of dispersion.

c) Describe systematic random sampling method.

Q.4 Answer any two of the following. **08**

a) Calculate Karl Pearson's coefficient of correlation from the data given below and interpret the result.

X	40	45	48	49	50	42
Y	50	52	57	60	56	45

b) For a certain bivariate data the least square lines of regression are $4y - x = 19$ & $9x - y = 39$, obtain regression coefficient of X on Y.

c) Define the following terms.

1) Attribute
2) median
3) class interval
4) Less than cumulative frequency

Q.5 Answer any one of the following. **08**

a) Represent the following data by histogram and hence find model value.

Class	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100
Freq.	5	11	14	20	25	22	13	9	3

b) Explain concept of measures of dispersion. Define various measures of dispersion and write their merits & demerits.

SLR-GD-38

Seat No.	

Set P

B.Sc. (E.C.S.) (Semester - IV) (New) (CBCS) Examination: March/April-2024
Data Visualization (ECS1406)

Day & Date: Monday, 15-04-2024 Max. Marks: 40
Time: 09:00 AM To 11:00 AM

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Q.1 Multiple Choice Questions. **08**

1) Which of the following is NOT a data source that can be used in Power BI?
a) Excel spreadsheets b) JSON files
c) Oracle databases d) Adobe Photoshop files

2) Which of the following is a data transformation feature in Power BI?
a) Data modeling b) Data visualization
c) Data exploration d) Data cleansing

3) Which of the following is a visualization option in Power BI?
a) Pivot table b) Histogram
c) Bubble chart d) All of these

4) Which of the following is a way to filter data in Power BI?
a) Slicer b) Histogram
c) Scatter plot d) Line chart

5) What is the purpose of the Query Editor in Power B?
a) To create and manage data models
b) To import and transform data from various sources
c) To analyze and visualize data
d) To share reports and dashboards with other users

6) Which of the following is a way to create a report in Power BI?
a) Using the Power BI desktop application
b) Using the Power BI service
c) Using a mobile app
d) All of the above

7) What is a measure in Power BI?
a) A calculation based on data in a dataset
b) A visualization option for displaying data
c) A filter that restricts the amount of data displayed in a report
d) A connection to a data source

8) What is the purpose of the Power BI service?
a) To create and manage data models
b) To import and transform data from various sources
c) To analyze and visualize data
d) To share reports and dashboards with other users

Q.2 Answer any four of the following. **08**

a) Write any two Uses of Power BI.
b) What is Power BI?
c) Define Data Modelling.
d) What is KPI?
e) Why Power BI?
f) List the common Data Sources.

Q.3 Write short notes on any two of the following. **08**

a) Write short note on Components of Power BI.
b) Write short note on Power BI data types.
c) Write short note on Dashboard tiles.

Q.4 Answer any two of the following. **08**

a) Explain the Architecture of Power BI.
b) Explain the different ways of creating table in Power BI.
c) Write the difference between Calculate Column and Measures.

Q.5 Answer any one of the following. **08**

a) Explain the different building blocks of Power BI.
b) Explain the text filter and date filter in Power BI.

SLR-GD-39

Seat No.		Set	P

B.Sc. (E.C.S.) (Semester - IV) (Old) (CBCS) Examination: March/April - 2024
Database Management System (ECS0401)

Day & Date: Friday, 05-04-2024 Max. Marks: 40
Time: 09:00 AM To 11:00 AM

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Q.1 Multiple choice questions. **08**

1) The _____ operation allows the combining of two relations by merging pairs of tuples, one from each relation, into a single tuple.
   a) Select b) Join
   c) Union d) Intersection

2) Which of the following locks the item from access of any type?
   a) Implicit lock b) Explicit lock
   c) Exclusive lock d) Shared lock

3) Relational Algebra is _____.
   a) Data Definition Language b) Meta Language
   c) Procedural query Language d) None of the above

4) In timestamp ordering protocol, suppose that the transaction Ti issues write(Q) and TS(Ti)<W-timestamp(Q), then _____
   a) Read operation is executed b) Read operation is rejected
   c) Write operation is executed d) Write operation is rejected

5) A logical schema _____.
   a) is the entire database
   b) is a standard way of organizing information into accessible parts
   c) describes how data is actually stored on disk
   d) both (a) and (c)

6) Tree structures are used to store data in _____.
   a) Network model b) Relational model
   c) Hierarchical model d) File based system

7) Which of the following can be a multivalued attribute?
   a) Phone_number b) Name
   c) Date_of_birth d) All of the mentioned

8) In the relational modes, cardinality is termed as _____.
   a) Number of tuples b) Number of attributes
   c) Number of tables d) Number of constraints

Q.2 Answer any four of the following. **08**

a) Define the term:
i) Tuple ii) Domain
b) What is Exclusive Lock?
c) Define entity.
d) What is Undo and Redo operations?
e) What is Relationship?
f) What are the advantages of DBMS?

Q.3 Write short notes on any Two of the following. **08**

a) Explain Components of DBMS.
b) Explain Select, Project, Cartesian Product and Union.
c) What is Transaction? Explain ACID properties with example.

Q.4 Answer any Two of the following. **08**

a) Explain types of scheduling with example.
b) Explain 2-tier and 3-tier architecture.
c) Explain transaction states with diagram.

Q.5 Answer any One of the following. **08**

a) Explain timestamp-based protocol.
b) Explain limitations of traditional file system.

SLR-GD-40

Seat No.	

Set P

B.Sc. (E.C.S) (Semester - IV) (Old) (CBCS) Examination: March/April-2024
MYSQL (ECS0402)

Day & Date: Sunday, 12-05-2024 Max. Marks: 40
Time: 09:00 AM To 11:00 AM

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Q.1 Multiple choice questions. **08**

1) _____ tests column for absence of data.
a) NOT Operator b) Exists Operator
c) IS NULL Operator d) None of the above

2) _____ is a virtual table, whose contents are based on the SQL statement's results.
a) Concatenate b) Virtual
c) View d) None of the above

3) Which is right statement to insert multiple records?
a) INSERT INTO job_question VALUES ('col1', 'col2'), ('col1', 'col2'),…
b) INSERT INTO job_question VALUES ('col1', 'col2', VALUES ('col1', 'col2'), ...
c) Both a & b
d) None of the above

4) Whenever a sub query appears in SQL, it is enclosed within _____ and placed to the_____ of the SQL operators.
a) Brackets, Left b) Brackets, Right
c) Parenthesis, Left d) Parenthesis, Right

5) Which of the following statements is NOT true for views in SQL?
a) Select statement used in the view definition cannot include ORDER BY clause.
b) A view drives its data from the base tables(s)
c) A view is updatable if it has been defined from a single relation
d) A view contains a copy of the data

6) _____ clauses are used to group rows based on the values of one or more columns in MySQL.
a) GROUP BY b) ORDER BY
c) HAVING d) WHERE

7) _____ is not a DDL command.
a) TRUNCATE b) ALTER
c) CREATE d) UPDATE

8) _____ command is used to delete a database.
a) DELETE DATABASE_NAME;
b) DROP DATABASE_NAME;
c) DROP DATABASE DATABASE_NAME;
d) DELETE DATABASE DATABASE_NAME;

Q.2 Answer the following questions. (Any Four) **08**

a) Define WHERE Clause in MySQL.
b) Write syntax and example of INSERT INTO command.
c) Define CHAR_LENGTH() Function.
d) Write syntax and example of between operator.
e) Write syntax and example of group by clause.
f) Write syntax and example of IFNULL()function.

Q.3 Write Short Notes. (Any Two) **08**

a) Explain Stored Procedure with example.
b) Explain Numeric Data Type in MySQL.
c) Explain any 8 Date and Time function.

Q.4 Answer the following questions. (Any Two) **08**

a) What is Table Locking? Explain types of locks with example.
b) Explain Math function with example.
c) Explain Inserting data into a table from another table.

Q.5 Answer the following questions. (Any One) **08**

a) Explain CREATE, ALTER (ADD AND MODIFY), DROP on table with example.
b) What is Sub Queries? Explain types of Sub queries with example.

SLR-GD-41

Seat No.	

Set P

B.Sc. (E.C.S.) (Semester - IV) (Old) (CBCS) Examination: March/April-2024
Operating System (ECS0403)

Day & Date: Wednesday, 10-04-2024 Max. Marks: 40
Time: 09:00 AM To 11:00 AM

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Q.1 Multiple choice questions. **08**

1) The layer between the hardware and the user program is _____.
a) Operating environment b) System environment
c) Operating system d) None of these

2) The operating system where fixed time slot is allocated to each active process is_____.
a) Real time O.S. b) Multiprogramming O.S.
c) Batch O.S. d) Time-sharing O.S.

3) Interval between the time of submission and completion of the job is called _____.
a) Waiting time b) Turn-around time
c) Throughput d) Response time

4) Binding of instructions and data to memory addresses can be done at _____.
a) Compile time b) Load time
c) Execution time d) All of the above

5) _____ allocates the largest hole (free fragments) available in the memory.
a) Best Fit b) Worst Fit
c) First Fit d) None of the above

6) _____ is the ability of multiple process to co-ordinate their activities by exchange of information.
a) Synchronization b) Mutual Exclusion
c) Deadlock d) Starvation

7) Semaphore is a _____ to solve the critical section problem.
a) Hardware for a system b) Special program for a system
c) Integer variable d) None of these

8) The number of processes completed per unit time is known as _____.
a) Output b) Throughput
c) Efficiency d) Capacity

Q.2 Answer any four of the following questions. **08**

a) What is Multiprogramming?
b) Define the term Segmentation.
c) What is Schedulers?
d) What is Race Conditions?
e) What is Deadlocks?
f) What is Paging?

Q.3 Write Short Notes. (Any Two) **08**

a) Write short notes on Time-Sharing OS.
b) Write short notes on demand paging.
c) Write short notes on FCFS Scheduling algorithms.

Q.4 Answer the following questions. (Any Two) **08**

a) What is process? Explain Process states with diagram.
b) Process Synchronization? Explain Dinning Philosopher Problem.
c) Explain different Services provided by Operating System.

Q.5 Answer the following questions. (Any One) **08**

a) What is Scheduling? Explain Round Robin Scheduling algorithms?
b) What is Swapping? Explain Swapping in details.

SLR-GD-42

Seat No.		Set	P

B.Sc. (E.C.S) (Semester - IV) (Old) (CBCS) Examination: March/April-2024
Linux OS and Shell Scripting (ECS0404)

Day & Date: Friday, 12-04-2024 Max. Marks: 40
Time: 09:00 AM To 11:00 AM

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Q.1 Choose the correct alternatives from the options. **08**

1) The program contained in boot block, that loads kernel into memory is called as _____.
a) Disk Bootstrap program
b) Master boot program
c) Shell program
d) None of these

2) The Linux Kernel was written by _____.
a) Brian Kernighan b) Dennis Ritchie
c) Richard Stallman d) Linus Torvalds

3) To transfer files in an insecure way to and from a remote network site host, you use the command:
a) ftp b) tcp
c) ucp d) sftp

4) To search one or more files for matching lines, which command may be used?
a) grep b) egrep
c) fgrep d) All of these

5) GRUB stands for _____.
a) Grand Unified Boot Loader b) Gentoo's Regular Booter
c) Great Unix Boot Loader d) GNU Released Unix Booter

6) Ubuntu is based on _____.
a) Fedora b) Slackware
c) Debian d) None of these

7) The command interpreter is also called the _____.
a) Prompt b) Kernel
c) Shell d) Command

8) The state of the file system is contained in _____.
a) Boot block b) Inode Block
c) Super Block d) None of the above

Q.2 Answers any four of the following. **08**

a) What is Shell Variables?
b) Define the Data Block.
c) Write syntax and example of mkdir and rmdir Command.
d) What is Filter Commands?
e) What is LILO?
f) What is System process?

Q.3 Write short notes on any two of the following. **08**

a) Users & Groups Management
b) I/O and Redirection
c) Vi Text Editor

Q.4 Answers any two of the following. **08**

a) What is Shell? Explain different types of shell.
b) Explain the different Printing the files command with example.
c) Explain Role of system administrator.

Q.5 Answers any one of the following. **08**

a) Explain Architecture of Linux system with different features of Linux.
b) Explain different Communication commands with example.

SLR-GD-43

Seat No.	

Set P

B.Sc. (E.C.S.) (Semester - IV) (Old) (CBCS) Examination: March/April-2024
Statistics for Data Science (ECS0405)

Day & Date: Saturday, 13-04-2024 Max. Marks: 40
Time: 09:00 AM To 11:00 AM

Instructions: 1) All questions are compulsory.
2) Draw neat diagrams and give equations whenever necessary.
3) Figures to the right indicate full marks.
4) Use of logarithmic table and calculator is allowed.

Q.1 Choose the correct alternatives from the options. **08**

1) The class width of the 10-18 class is _____.
a) 10 b) 18
c) 8 d) 14

2) Median are the values dividing a given set of observations into _____.
a) Two equal parts b) Four equal parts
c) Three equal parts d) Five equal parts

3) The value of correlation coefficient is always lies between _____.
a) 0 to 1 b) -1 to 1
c) -1 to 0 d) none of these

4) The number of items belonging to a particular class is called as _____ of that class.
a) lower limit b) upper limit
c) mid-value d) class frequency

5) In _____ method of sampling same item not be selected more than once.
a) SRSWOR b) SRSWR
c) SRS d) All of these

6) For the given set of observations 20, 25, 23, 27, 20, 23, 22, 28, 22, 20 the mode is _____.
a) 20 b) 27
c) 23 d) none of these

7) Any part of the population under study is called as _____.
a) Population b) Sample
c) Finite population d) None of these

8) To draw a histogram class must be of type _____.
a) open end b) exclusive
c) inclusive d) all of these

Q.2 Answer any four of the following. **08**

a) Find the mean for 37, 42, 55, 43, 48, 32, 32, 52 and 30.

b) Define the Karl Pearson's correlation coefficient.

c) Given $n = 8,\ \sum x = 588, \sum x^2 = 48866$, find coefficient of variation(C.V)

d) Given $\text{Cov}(X, Y) = -90$, $\text{Var}(X) = 144$, $\text{Var}(Y) = 324$ find $'r_{xy}'$.

e) Define median.

f) Write a merits of Mode.

Q.3 Answer any two of the following. **08**

a) Define the Quartiles for grouped data.

b) Calculate A.M. from following frequency distribution.

X	2	4	6	8	10
f	9	18	17	25	5

c) Find correlation coefficient between X and Y.

X	10	12	15	20	22
Y	8	10	15	19	21

Q.4 Answer any two of the following. **08**

a) Find the value of median.

Marks	0-10	10-20	20-30	30-40	40-50
No. of students	12	17	21	28	7

b) Write the procedure to construct the less than ogive curve.

c) What is dispersion? Distinguish between absolute and relative measure of dispersion.

Q.5 Answer any one of the following. **08**

a) Draw the histogram from the following data. Hence determine the mode.

Class	10-20	20-30	30-40	40-50	50-60	60-70
Frequency	9	13	18	22	8	7

b) Write down the types of correlation with its scatter diagram.

SLR-GD-44

Seat No.	

Set P

B.Sc. (E.C.S) (Semester - IV) (Old) (CBCS) Examination: March/April-2024
Optimization Techniques (ECS0406)

Day & Date: Monday, 15-04-2024 Max. Marks: 40
Time: 09:00 AM To 11:00 AM

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.
3) Draw neat diagrams and give equations wherever necessary.
4) Use of logarithmic table and calculator is allowed.

Q.1 Choose the correct alternatives from the options. **08**

1) For maximization in T.P. the objective is to maximize the total _____.
a) Solution b) Profit matrix
c) Profit d) None of these

2) To solve L.P.P. graphical method is used only when number of variables are less than or equal to _____.
a) 3 b) 4
c) 2 d) None of these

3) An A.P. is special type of _____.
a) T.P. b) L.L.P.
c) A.P. d) None of these

4) In an IBFS of T.P. the number of occupied cells must be _____.
a) $m-n+1$ b) $m-n-1$
c) $m+n+1$ d) $m+n-1$

5) The cost associated with slack or surplus variable in objective function is _____.
a) One b) Positive
c) Negative d) Zero

6) A given T.P is said to be unbalance if the total supply is not equal to total _____.
a) Optimization b) Demand
c) Row d) Column

7) In _____ problem no. of rows equal to number of columns.
a) Transportation b) Assignment
c) Linear Programming d) None of these

8) A feasible solution to an LPP which is also the basic solution is called _____ solution.
a) Feasible b) Optimal
c) Basic Feasible d) Alternate

Q.2 Answer any four of the following. **08**

a) Define surplus variables in L.P.P.
b) What is transportation problem?
c) What is Assignment problem?
d) Define standard form of L.P.P.

e) Write the standard form of the given L.P.P.
$\text{Max.}\, z = x + 2y + z,$
Subject to constraint, $2x + y + z \leq 6$
$x + y + z \leq 8$
$3x + 4y + 2z \geq 10;\ x, y, z \geq 0$

f) What is O.R.

Q.3 Answer any two of following. **08**

a) Explain North West Corner method.
b) Write a note on unbalanced T.P.
c) Solve the following L.P.P. by Graphical method
$\text{Max.}\, z = 2x + 4y$
Subject to $x + 2y \leq 5,$
$x + y \leq 4$ and $x, y \geq 0.$

Q.4 Answer any two of following. **08**

a) Give the difference between T.P. and A.P.
b) Find IBFS of the following T.P. by VAM method

	P	Q	R	S	a_i
A	1	2	1	4	30
B	3	3	2	1	50
C	4	2	5	9	20
b_j	20	40	30	10	

c) A person is planning to buy to machines A and B. He can buy at most 8 machines in all. He needs at least 3 machines of type A and at least 2 of type B. He can buy not more than 5 machines of type A and not more 4 machines of type B. He earns a profit of Rs. 100 on machine A and Rs. 50 on machine B. Formulate the given LPP.

Q.5 Attempt any one of the following. **08**

a) Find IBES using VAM and also find optimum solution by MODI method

Destination → / Origin ↓	D_1	D_2	D_3	D_4	Availability
O_1	23	27	16	18	30
O_2	12	17	20	51	40
O_3	22	28	12	32	53
Requirement	22	35	25	41	

b) Solve the LPP by using simplex method:
Maximize: $z = 3x + 2y$
Subject to: $x + y \leq 4$
$x - y \leq 2$
and $x, y \geq 0$

SLR-GD-45

Seat No.	

Set P

B.Sc. (E.C.S.) (Semester - IV) (Old) (CBCS) Examination: March/April-2024
Web Development using PHP (ECS0407)

Day & Date: Tuesday, 16-04-2024 Max. Marks: 40
Time: 09:00 AM To 11:00 AM

Instructions: 1) All questions are compulsory.
2) Draw neat diagrams and give equations wherever necessary.
3) Figures to the right indicate full marks.
4) Use of logarithmic table and calculator is allowed.
(At. Wts.: H=1, C=12, O=16, N=14, Na=23, Cl=35.5)

Q.1 Multiple choice question. **08**

1) What is PHP?
a) PHP is an open-source programming language
b) PHP is used to develop dynamic and interactive websites
c) PHP is a server-side scripting language
d) All of the mentioned

2) Which one of the following PHP function is used to determine a file's last access time?
a) filetime() b) fileatime()
c) fileltime() d) filectime()

3) Which PHP statement will give output as $x on the screen?
a) echo "\$x"; b) echo "$$x";
c) echo "/$x"; d) echo "$x;";

4) Which version of PHP introduced the advanced concepts of OOP?
a) PHP 6 b) PHP 4
c) PHP 5 d) PHP 5.3

5) Which of the following is the default file extension of PHP files?
a) .php b) .ph
c) .xml d) .html

6) Which of the following is the correct way to add a comment in PHP code?
a) # b) //
c) /* */ d) All of the mentioned

7) Which variable is used to collect form data sent with both the GET and POST methods?
a) $_BOTH b) $REQUEST
c) $_REQUEST d) $BOTH

8) How to define a function in PHP?
a) functionName(parameters) {function body}
b) function {function body}
c) function functionName(parameters) {function body}
d) data type functionName(parameters) {function body}

Q.2 Answer any Four of the following. **08**

a) What is operator?
b) Define string.
c) What is server side scripting?
d) What is two dimensional array?
e) List out array sorting functions.
f) List out string comparing functions.

Q.3 Write short notes on any Two of the following. **08**

a) Write a note on cookies in PHP.
b) GET and POST methods in PHP
c) Logical operators

Q.4 Answer any Two of the following. **08**

a) Write difference between call by value and call by reference.
b) Write a PHP script to find out number is palindrome or not.
c) Explain defining and calling function with example.

Q.5 Answer any One of the following. **08**

a) Explain matching and replacing substring functions with example.
b) Explain while loop and do_while loop with example.

SLR-GD-46

Seat No.		Set	P

B.Sc. (E.C.S.) (Semester - V) (New) (CBCS) Examination: March/April-2024
ENGLISH
Business English (ECS0501)

Day & Date: Friday, 05-04-2024 Max. Marks: 40
Time: 03:00 PM To 05:00 PM

Instructions: 1) All questions are compulsory.
2) Figures to the right indicates full marks.

Q.1 Choose the correct alternatives from the options. **08**

1) What did Della sell off to buy a gift for Jim?
a) jewellery b) fur coat
c) her hair d) combs

2) What did Phatik leave for his brother?
a) bicycle b) wooden log
c) books d) Fishing-rod, kite and marbles

3) What instrument was the girl using?
a) axe b) spade
c) knife d) sickle

4) _____ is popularly known as the Nightingale of India.
a) Toru Dutt b) Sarojini Naidu
c) Kamala Das d) None of these

5) Who snatched the queen's mirror?
a) her daughter b) the new bride
c) the king d) other queen

6) What is the poet sorry about?
a) his actions b) his past
c) his life choices d) he couldn't travel both roads

7) The boys were playing cricket. (Change the Voice)
a) Cricket had been played by the boys.
b) Cricket has been played by the boys.
c) Cricket was played by the boys.
d) Cricket was being played by the boys.

8) The meeting was _____ as the CEO of the company couldn't come. (use appropriate phrasal verb)
a) called off b) called in
c) called out d) called to

Q.2 Write Short Answers. (Any Four) **12**

a) Sketch the character of Della.
b) How did Phatik feel arriving at the uncle's house?
c) Write in brief about the poem The Solitary Reaper.
d) Why is the queen unsatisfied and seeks a rival?
e) Describe the character of the village schoolmaster.
f) What is the significance of the two roads in the poem?

Q.3 Answer the following questions. (Any One) **10**

a) What are the qualities required to be a successful leader?

b) Explain the 21st Century Skills in details.

Q.4 Answer the following question. **10**

Explain the Learning Skills (The 4 C's) in details.

SLR-GD-47

Seat No.	

Set P

B.Sc. (E.C.S.) (Semester - V) (New) (CBCS) Examination: March/April-2024
Data Communication and Networking (ECS0502)

Day & Date: Sunday, 12-05-2024 Max. Marks: 80
Time: 03:00 PM To 06:00 PM

Instructions: 1) All questions are compulsory.
2) Draw neat labeled diagrams wherever necessary.
3) Figures to the right indicate full marks.
4) Use of log table and calculators is allowed.

Q.1 A) Multiple choice questions. **10**

1) In a _____ connection, more than two devices can share a single link.
   a) Point-to-point b) Primary
   c) Multi-point d) Secondary

2) The OSI model consists of _____ layers.
   a) Five b) Seven
   c) Eight d) Nine

3) In virtual circuit network each packet contains _____.
   a) full source and destination address
   b) a short VC number
   c) only source address
   d) only destination address

4) _____ topology requires a central controller or hub.
   a) Star b) Mesh
   c) Bus d) Ring

5) _____ is not a application layer protocol.
   a) HTTP b) SMTP
   c) FTP d) TCP

6) The physical layer is concerned with the transmission of _____ over the physical medium.
   a) Programs b) Protocols
   c) Bits d) Dialog

7) The ____ layer lies between the network layer and the application layer.
   a) Data link b) Physical
   c) Transport d) None of the above

8) Transport services available to applications in one or another form ____.
   a) Reliable data transfer b) Timing
   c) Security d) All of the mentioned

9) Before data can be transmitted, they must be transformed to _____.
   a) Electromagnetic signals
   b) Periodic signals
   c) A periodic signal
   d) Low-frequency sine waves

10) In _____ each station sends a frame whenever it has a frame to send.
a) pure ALOHA b) slotted ALOHA
c) both (a) and (b) d) neither (a) nor (b)

B) True or false. **06**

1) The highest capacity wireless media is satellite microware.
2) UDP is a connection-oriented protocol.
3) The star topology ensures that the network will work even when a node fails.
4) The standard protocol of the Internet is Ethernet.
5) The dynamic websites are faster than static websites.
6) SSL provides a safe passage for data over Internet.

Q.2 Solve any eight of the following. **16**

a) Bandwidth
b) Error Detection
c) Gateways
d) WWW
e) RARP
f) Analog Signal
g) Telnet
h) Connection oriented and connection less
i) Error Control
j) Hubs

Q.3 a) Attempt any two of the following. **10**

1) Explain Switching in detail.
2) Explain Difference between TCP and UDP.
3) Explain Design issues of Network Layer.

b) Define Network. Explain Network Topologies. (Any 4) **06**

Q.4 a) Attempt any two of the following. **08**

1) Explain Error Recovery Protocol.
2) Explain port Services in detail.
3) Explain Parallel and Serial Transmission.

b) Explain Transmission Media-Guided Media- Guided and Unguided Media in detail. **08**

Q.5 Attempt any two of the following. **16**

a) Explain Define Network and explain OSI reference model in detail.
b) Define Routing. Elaborate shortest path Routing and Link state Routing algorithm.
c) Explain Network types with advantages and disadvantages in detail.

SLR-GD-48

Seat No.		Set	P

B.Sc. (E.C.S) (Semester - V) (New) (CBCS) Examination: March/April-2024
Theory of Computer Science (ECS0503)

Day & Date: Wednesday 10-04-2024 Max. Marks: 80
Time: 03:00 PM To 06:00 PM

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.
3) Draw neat labelled diagrams wherever necessary.

Q.1 A) Choose the correct alternatives from the options. **10**

1) The ordered pair of elements is known as _____.
   a) set b) alphabet
   c) relation d) string

2) The proper prefix of the string abc is _____.
   a) $\{\varepsilon, c, bc, abc\}$ b) $\{\varepsilon, c, bc\}$
   c) $\{\varepsilon, a, ab, abc\}$ d) $\{\varepsilon, a, ab\}$

3) _____ is a collection of objects without repetition.
   a) set b) alphabet
   c) relation d) string

4) In _____ machine, the transition is associated with the state.
   a) Moore b) Mealy
   c) both a and b d) None of these

5) If $L(r) = (a, aa, aaa, aaaa, aaaaa\}$ then r = _____.
   a) a^* b) a^+
   c) a^5 d) a^4

6) A pumping lemma is used to prove a given language is _____.
   a) irregular b) context-sensitive
   c) restricted d) None of these

7) The Moore machine has final states.
   a) True b) False

8) A grammar that produces more than one parse tree for some sentence is called _____.
   a) context free b) regular
   c) ambiguous d) none of these

9) TM is more powerful than PDA.
   a) True b) False

10) In PDA one situation has only one transition then which is known as _____.
   a) TM b) DPDA
   c) NPDA d) Stack

B) Fill in the blank **06**

1) A grammar that produces more than one parse tree for some sentence is called _____.
2) In PDA one situation has more than one transition then it is known as _____.
3) Regular grammar is also known as _____.
4) The function which mapping one to one from input to state function is known as _____ function.
5) The regular expression for Arden's algorithm is _____.
6) The _____ is accepted unrestricted grammar.

Q.2 Answer the followings (Any Eight): **16**

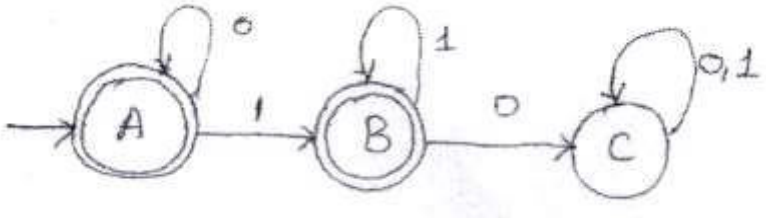
a) Let $R = \{(1,2), (2,3), (2,4)\}$ be a relation in $\{1,2,3,4\}$. Find R^+
b) Give operations on set.
c) Why we require NFA with ϵ -moves?
d) What are the applications of DFA?
e) How many ways PDA accept language? Give names.
f) Show that $(a+b)^* = (a+b)^* + (a+b)^*$.
g) What is the context-free grammar for $(a+b)^*.abc.(a+b)^*$.
h) Explain notations used in CFG.
i) State difference between Moore and Mealy machine.
j) Define Turing Machine.

Q.3 A) Answer the followings (Any Two): **10**

1) Convert the following NFA to it's equivalent DFA.

	0	1
p	{p,q}	{p}
q	{r}	{r}
r	{s}	ϕ
*s	{s}	{s}

2) Construct DFA to find out given number is divisible by 3.
3) Construct RE for following DFA by using Arden's theorem.



B) Construct F.A. equivalent to R.E. **06**
$(a \,/\, b)^*(aa + bb)^* (a \,/\, b)^*$

Q.4 A) Answer the followings (Any two): **08**

1) Explain how to convert Moore into Mealy with an example.
2) Find a grammar in CNF equivalent to grammar
   $E \rightarrow E + T \mid T,\ T \rightarrow T^{*}F \mid F, F \rightarrow (E) \mid a.$
3) Design a DFA which accepts a string that does not have abc as substring over $\sum = \{ a, b, c\}$.

B) What is the pumping lemma? Using the pumping lemma check $\{a^p \mid p$ is prime$\}$ is regular or not. **08**

Q.5 Answer the following. (Any Two) **16**

a) Construct PDA that accepts the language generated by CFG.
$S \rightarrow S + S \mid S\,^{*}S \mid 4 \mid 2$
Give the acceptance of string "$2 + 2\,^{*}4$" by PDA.

b) What is context-free grammar? Explain derivations and parse tree with example.

c) Design TM for $L = \{a^n\ b^n \mid n >= 1\}$.

SLR-GD-49

Seat No.	

Set P

B.Sc. (E.C.S.) (Semester - V) (New) (CBCS) Examination: March/April-2024
Visual Programming (ECS0504)

Day & Date: Friday, 12-04-2024 Max. Marks: 80
Time: 03:00 PM To 06:00 PM

Instructions: 1) All questions are compulsory.
2) Figures to right indicate full marks.

Q.1 A) Multiple choice questions. **10**

1) Which among the following cannot be used as a datatype for an enum in C#.NET?
   a) short b) double
   c) int d) All of the mentioned

2) Choose the keyword which declares the indexer?
   a) base b) this
   c) super d) extract

3) Which of these methods are used to read single character from the console?
   a) get() b) getline()
   c) read() d) readLine()

4) Storage location used by computer memory to store data for usage by an application is?
   a) Pointers b) Constants
   c) Variable d) None of the mentioned

5) The capability of an object in Csharp to take number of different forms and hence display behaviour as according is known as _____.
   a) Encapsulation b) Polymorphism
   c) Abstraction d) None of the mentioned

6) Number of constructors a class can define is?
   a) 1 b) 2
   c) Any number d) None of the mentioned

7) To implement delegates, the necessary condition is?
   a) class declaration b) inheritance
   c) runtime polymorphism d) exceptions

8) _____ object is used to fill a DataSet/DataTable with query results in ADO.net
   a) DataReader b) Dataset
   c) DataAdapter d) DataTables

9) C# doesnot support:
   a) abstraction b) polymorphism
   c) multiple inheritance d) inheritance

10) Exception objects are derived from the class.
   a) Try b) Catch
   c) Exception d) Event
   e) System

B) One sentence answer. **06**

1) Stands for CTS.
2) What is file?
3) Write function of Length().
4) Write use of console.writeline.
5) What is abstract class?
6) What is function?

Q.2 Solve any Eight of the following. **16**

a) What is type conversion?
b) What is Menu script?
c) What is managed code?
d) What is ADO.net?
e) What is unboxing?
f) What are Multicast delegates?
g) What is difference between listbox & combo box?
h) What is Assembly?
i) What is sealed class C#?

Q.3 A) Answer any Two of the following. **10**

1) Explain copy constructor with example.
2) Explain polymorphism in c#.
3) Explain indexer with example.

B) Short note on Interface. **06**

Q.4 A) Answer any Two of the following. **08**

1) Explain .net framework with diagram.
2) Explain parameter passing technique.
3) What is exception handling & explain try, catch with example.

B) Describe any four control in windows application. **08**

Q.5 Answer any Two of the following. **16**

a) Explain collection.
b) What is use of delegates? Write simple example of delegate in c#.
c) Define inheritance & Explain Multilevel inheritance with example.

SLR-GD-50

Seat No.	

Set P

B.Sc. (E.C.S.) (Semester - V) (New) (CBCS) Examination: March/April-2024
Advanced Java (ECS0505)

Day & Date: Saturday, 13-04-2024 Max. Marks: 80
Time: 03:00 PM To 06:00 PM

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Q.1 Multiple choice questions. **10**

1) All collection classes are available in _____ package.
   a) Java.io package b) java.lang package
   c) java.awt package d) java.util package

2) In Java, what do you call an area on the screen that has nice borders and various buttons? along the top border?
   a) A window b) A screen
   c) A box d) A frame

3) Which JSTL tag removes the variable from either a first scope or a specified scope?
   a) <c:set> b) <c:remove>
   c) <c:delete> d) All of these

4) What is the name of the Swing class that is used for frames?
   a) Window b) Frame
   c) JFrame d) SwingFrame

5) JSP stands for _____.
   a) Java Service Programming b) Java Service Pages
   c) Java Server Programming d) Java Server Pages

6) Request is instance of which class?
   a) Request b) HttpRequest
   c) HttpServletRequest d) ServletRequest

7) The Java _____ specification defines an application programming interface for communication between the Web server and the application program.
   a) Servlet b) Server
   c) Program d) Randomize

8) _____ is the extension of Deployment Descriptor file in servlet.
   a) .java b) .web
   c) .xml d) .class

9) Which cookie it is valid for single session only and it is removed each time when the user closes the browser?
   a) Persistent Cookie b) Non-persistent Cookie
   c) Both a and b d) None of these

10) Which of the following attributes are mandatory in <jsp: useBean/> tag?
   a) id, type b) id, class
   c) type, class d) type, property

B) Fill in the blanks. **06**

1) _____ Method can be used to read a form parameter in JSP.
2) Servlet are used to program _____ component in a web application.
3) _____ Class can handle any type of request means protocol-independent.
4) AWT Stands for _____.
5) JSTL stands for _____.
6) _____ Class that is used for frames in Swing.

Q.2 Solve any Eight of the following. **16**

a) What is a network interface?
b) What is Deployment descriptor?
c) List out advantages of JSP over servlet.
d) Define methods of JTextArea.
e) What are cookies?
f) What is JDBC?
g) What are Datagram's and Sockets?
h) Why Swing is called light weight?
i) What is Servlet API?
j) What is the difference between TCP and UDP?

Q.3 A) Attempt any two of the following. **10**

1) Explain different types of JDBC drivers.
2) Explain different types of implicit object in JSP.
3) Write a program to design an applet to check whether number is Armstrong or not. (Take no. from textbox)

B) Write Short Note on: **06**

1) Callable Statement
2) Multithreading in Servlets

Q.4 A) Attempt any Two of the following. **08**

1) Explain JDBC architecture in detail.
2) What are the advantages of JSP over Servlet?
3) What is Swing? Explain JFrame and JComponent in Swing Technology.

B) Explain the architecture of JSP with advantage and disadvantages. **08**

Q.5 Attempt any two of the following. **16**

a) Explain Tree Table & Menus component in swing with suitable example.
b) Explain MVC architecture in detail
c) What is an Applet? Explain Applet HTML tags.

SLR-GD-51

Seat No.	

Set P

B.Sc. (E.C.S.) (Semester - V) (New) (CBCS) Examination: March/April-2024
Advanced Python Programming (Special Paper - XI) (ECS0506)

Day & Date: Monday, 15-04-2024 Max. Marks: 80
Time: 03:00 PM To 06:00 PM

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Q.1 A) Choose correct alternatives. **10**

1) XML is designed to _____ and store data.
   a) Verify b) Design
   c) Transport d) None of the above

2) MySQL runs on which operating systems?
   a) Unix and Linux only
   b) Linux and Mac OS-X only
   c) Unix, Linux, Windows and others
   d) Any operating system at all

3) What does the java.net.InetAddress class represent?
   a) Socket b) IP Address
   c) Protocol d) MAC Address

4) Screen inside another screen is possible by creating _____.
   a) Another window b) Frames
   c) Buttons d) Labels

5) _____ makes it possible for two or more activities to execute in parallel on a single processor.
   a) Multithreading
   b) Threading
   c) SingleThreading
   d) Both Multithreading and SingleThreading

6) Python pandas was developed by?
   a) Guido van Rossum b) Travis Oliphant
   c) Wes McKinney d) Brendan Eich

7) Which of the following value is provided by kind keyword for barplot?
   a) bar b) kde
   c) hexbin d) none of the mentioned

8) What returns the set cookies in the form of a key?
   a) path_info b) http_user_agent
   c) http_cookie d) query_string

9) What will be the minimum number of arguments require to pass in pandas series?
   a) 2 b) 3
   c) 4 d) none of the above mentioned

10) GUI stands for _____.
   a) Graph user interaction b) Global user interaction
   c) Graphical user interface d) Graphical user interaction

B) Fill in the blanks. **06**

1) Pandas key data structure is called _____.
2) An XML document is a string of _____.
3) _____ is the default port of SMTP.
4) The method will be executed once the thread's _____ method is called.
5) Config() in Python Tkinter are used for _____.
6) Which function returns the current date and time in MySql _____.

Q.2 Answer the following (Any Eight): **16**

a) What is Data Frame?
b) Write a use of matplotlib.
c) What is Tkinter?
d) What is Multithreading?
e) What is URL?
f) What is Database?
g) What is XML?
h) What is plotting?
i) What is Widgets?
j) Write advantages of CGI.

Q.3 A) Answer the following questions. (Any Two) **10**

1) Write a program for avoid a deadlock.
2) Explain architecture of CGI.
3) Explain steps for database connectivity.

B) What is GUI? Advantages of GUI. **06**

Q.4 A) Answer the following questions. (Any Two) **08**

1) Explain use of panda's module.
2) Explain thread synchronization.
3) Write a program for Scatter plot using matplotlib.

B) Explain thread life cycle. **08**

Q.5 Answer the following questions. (Any Two) **16**

a) Explain XML architecture with example.
b) Explain scrollbar and spinbox.
c) Explain Layout manager.

SLR-GD-52

Seat No.	

Set P

B.Sc. (E.C.S.) (Semester - VI) (New) (CBCS) Examination: March/April-2024
ENGLISH
Literary Mindscapes - I (ECS0601)

Day & Date: Tuesday, 16-04-2024 Max. Marks: 40
Time: 3:00 PM To 05:00 PM

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Q.1 Choose the correct alternative. **08**

1) _____ was the name of dog in the story 'Growing up'.
a) Sport b) Sort
c) Snort d) Snore

2) Who among the following wrote the famous novel 'Anna Karenina'?
a) Leo Tolstoy b) Joyce Cary
c) Anton Chekov d) None of the above

3) Complete the following line.
'Is by a _____ Sung 'Tis hushed at last'
a) brother b) sister
c) mother d) father

4) _____ is the narrator in the poem 'My Last Duchess'.
a) The poet b) The duke
c) The duchess d) The emissary

5) The poem 'Ode to Beauty' is composed in _____ Couplets.
a) single b) double
c) three d) heroic

6) What do the sages say about life according to Charlotte Bronte?
a) life's sunny hours
b) life is beautiful and gloomy dream
c) oft a little morning rain
d) make the roses bloom

7) Choose the correct adverb to fill in the blank.
I have worked _____ hard for the scholarship.
a) very b) completely
c) now d) None of the above

8) Seema said, "I love to read." (Choose the correct indirect speech)
a) Seema told that she loves to read.
b) Seema said that she loved to read.
c) Seema says that she had loved to read.
d) Seema exclaimed that she had been loving to read.

Q.2 Write short answers of the following questions. (Any Four) **12**

a) How was Robert and the dog attacked?

b) Discuss the impact of forgiveness with reference to the story 'God Sees the Truth but Waits.'

c) Describe the use of memory and tradition in the poem 'Sita.'

d) How does the poet describe the personality of the duchess?

e) Discuss the poem 'Ode to Beauty' as a romantic poem.

f) Explain the central idea of the poem 'Life.'

Q.3 Answer any one of the following. **10**

a) Write a detail note on the two important literacy skills.

OR

b) Discuss in detail the various life skills.

Q.4 Define Initiative in your own words. Give an example of a situation in which you took initiative. **10**

SLR-GD-53

Seat No.	

Set P

B.Sc. (E.C.S.) (Semester - VI) (New) (CBCS) Examination: March/April-2024
System Security (ECS0602)

Day & Date: Thursday, 18-04-2024 Max. Marks: 80
Time: 03:00 PM To 06:00 PM

Instructions: 1) All questions are compulsory.
2) Figures to right indicate full marks.

Q.1 A) Multiple choice questions. **10**

1) An encryption algorithm transforms the plaintext into _____.
   a) Cipher text b) Simple text
   c) Plain text d) Empty text

2) A program that copies itself is called _____.
   a) Worm b) Virus
   c) Trojan d) Bom

3) An attack in which the site is not capable of answering valid request.
   a) Smurfing b) Denial of service
   c) E-mail bombing d) Ping storm

4) A malicious code hidden inside a seemingly harmless piece of code.
   a) Worm b) Bomb
   c) Trojan Horse d) Virus

5) An attack in which the user receives unwanted amount of e-mails.
   a) Smurfing b) Denial of service
   c) E-mail bombing d) Ping storm

6) In a database where the encryption is applied the data is cannot be handled by the unauthorised user without _____.
   a) Encryption key b) Decryption key
   c) Primary key d) Authorized key

7) Data encryption standard (DES) is a _____.
   a) Block cipher b) Stream cipher
   c) Bit cipher d) byte cipher

8) The process of transforming plain text into unreadable text is called _____.
   a) Decryption b) Encryption
   c) Network Security d) Information Hiding

9) _____ is a process which verifies the identity of a user who wants to access the system.
   a) Authentication b) Non-repudiation
   c) Integrity d) None of the above

10) Which of the following is a program capable of continually replicating with little or no user intervention?
   a) Virus b) Trojan horses
   c) Rootkit d) Worms

B) Fill in the blanks. **06**

1) _____ play an important role in the use of encryption for various network security applications.
2) _____ is the basis for most types of access control and for user accountability.
3) The hashed passwords are kept in a separate file from the user IDs, referred to as a _____.
4) _____ are directed at the user file at the host where passwords, token passcodes, or biometric templates are stored.
5) A _____ is a structured collection of data stored for use by one or more applications.
6) _____ programs can be used to accomplish functions indirectly that the attacker could not accomplish directly.

Q.2 Solve any Eight of the following. **16**

a) Define computer security.
b) What is a digital signature?
c) What is a public-key certificate?
d) What are four means of authenticating a user's identity?
e) Define the three classes of subject in an access control system.
f) Define the terms database management system and query language.
g) What is a "logic bomb"?
h) What are typical phases of operation of a virus or worm?
i) Define a distributed denial-of-service (DDoS) attack.
j) Define a reflection attack.

Q.3 A) Attempt any Two of the following. **10**

1) Explain Message Authentication and Hash Functions in detail.
2) Define the User Authentication. Explain Electronic Identity Cards and smart card in Token-Based Authentication.
3) Explain Access Control Context and Access Control Policies in Access Control Principles.

B) Short note/Solve. **06**

1) Database Encryption
2) Flooding Attacks

Q.4 A) Attempt any Two of the following. **08**

1) What are two common techniques used to protect a password file?
2) Explain the means of Authentication.
3) What is a relational database and what are its principal ingredients?

B) What is biometric authentication? Explain physical characteristics used in Biometric Applications and operation of a Biometric Authentication System. **08**

Q.5 Attempt any Two of the following. **16**

a) What is Malicious Software? Explain types of Malicious Software.
b) Explain Denial-of-Service Attacks in detail.
c) What is Confidentiality? Explain Confidentiality with Symmetric Encryption.

SLR-GD-54

Seat No.	

Set P

B.Sc. (E.C.S.) (Semester - VI) (New) (CBCS) Examination: March/April-2024
Compiler Construction (ECS0603)

Day & Date: Wednesday, 24-04-2024 Max. Marks: 80
Time: 03:00 PM To 06:00 PM

Instructions: 1) All questions are compulsory.
2) Draw neat labelled diagrams wherever necessary.
3) Figures to right indicate full marks.

Q.1 A) Multiple choice questions. **10**

1) The compiler process can be considered as a series of sub process is called _____.
   a) series b) sub process
   c) phases d) None of these

2) In some programming languages, an identifier is permitted to be a letter followed by any number of letters or digits. If L and D denote the sets of letters and digits respectively, which of the following expressions define an identifier?
   a) $(L \cup D)^*$ b) $L\,(L \cup D)^*$
   c) $(L^* D)^*$ d) $L.\,(L.\,D)^*$

3) _____ is the activity of filling up unspecified information of labels using appropriate semantic actions in during the code generation process.
   a) dangling reference b) symbol table
   c) Backtracking d) Backpatching

4) SLR parser is more powerful than the SLR parser.
   a) True b) False

5) A rightmost derivation in reverse is obtained by _____.
   a) handle b) handle pruning
   c) grammar d) None of these

6) An important component of semantic analysis is _____.
   a) code checking b) type checking
   c) flush checking d) All of the above

7) A computer uses a _____ to keep track of scope and binding information about names.
   a) phases b) symbol table
   c) heap allocation d) None of these

8) The running time of a program depends on _____.
   a) the way the registers and addressing modes are used
   b) order in which computations are performed
   c) the usage of machine idioms
   d) All of those

9) The attributes that can be computed from the values of the attributes at the siblings and parent of that node is called as _____.
   a) synthesized b) inherited
   c) both a & b d) None of these

10) _____ values of actual parameters are passed to the caller procedure in the call by value.
   a) R b) L
   c) Both (a) & (b) d) None of these.

B) Fill in the blank. **06**

1) The _____ occurs when there is a reference to storage that has been deallocated.
2) If optimization is over small program segments then it is called as _____ optimization.
3) The _____ is a flow graph in which there are two types of edges forward edges and backward edges.
4) The _____ is optional phase of compiler.
5) The output of a lexical analyser is _____.
6) A _____ compiler is also called a residential compiler.

Q.2 Solve any Eight of the following. **16**

a) Define:
   i) Token
   ii) Pattern

b) Write a short note on input buffering.

c) What are the difficulties with top-down parsing?

d) What are the actions available in the shift-reduce parser?

e) What is left recursion? How it is eliminated?

f) What is the difference between CLR and LALR?

g) Define Short Circuit Code.

h) Why there is a need of code optimization?

i) Define:
   i) dominators
   ii) natural loops

j) What is the form of three address code?

Q.3 A) Attempt any Two of the following. **10**

1) Construct DAG for Expression? $A + a^* (b - c) + (b - c)^* d.$
2) Explain compiler construction tools in detail.
3) What is parameter? Explain the parameter transmission techniques.

B) Find out a triple, quadruple, and indirect triple for the following: **06**
$a = b + c * d;$

Q.4 A) Attempt any Two of the following. **08**

1) Explain basic block and flow graphs with examples.
2) What is code optimization? Explain in detail the principal source of optimization.
3) Find out the first and follows of following grammar:
$S \rightarrow aABb,\ A \rightarrow c \mid \epsilon,\ B \rightarrow d \mid \epsilon.$

B) Construct annotated parse tree for 3*5+4n using the following grammar rules. **08**

PRODUCTION	SEMANTICS RULES
1) $L \rightarrow E\ n$	$L.val = E.val$
2) $E \rightarrow E_1 + T$	$E.val = E_1.val + T.val$
3) $E \rightarrow T$	$E.val = T.val$
4) $T \rightarrow T_1 * F$	$T.val = T_1.val \times F.val$
5) $T \rightarrow F$	$T.val = F.val$
6) $F \rightarrow (\ E\ )$	$F.val = E.val$
7) $F \rightarrow digit$	$F.val = digit.lexval$

Q.5 Attempt any Two of the following. **16**

a) What is compiler? Explain phases of compiler.

b) Construct LALR (1) for following grammar and find out grammar is LALR (1) or not?

$S \rightarrow CC, \quad C \rightarrow aC, \quad C \rightarrow d$

c) What is Parser? Explain bottom-up parser with its types.

SLR-GD-55

Seat No.		Set	P

B.Sc. (E.C.S) (Semester - VI) (New) (CBCS) Examination: March/April-2024
Internet Programming using ASP.Net (ECS0604)

Day & Date: Thursday, 25-04-2024 Max. Marks: 80
Time: 03:00 PM To 06:00 PM

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Q.1 A) Choose the correct alternatives from the options. **10**

1) In asp.net application dll files are stored in which folder.
   a) Bin b) App_Data
   c) App_Code d) App_LocalResources

2) Which is the file extension used for an asp.net file?
   a) .jpeg b) .aspx
   c) .docx d) None of the above

3) Which attribute is necessary for HTML control to work as a HTML server control?
   a) runat=”server” b) runat=”web-server”
   c) ID=”server” d) ID=”web-server”

4) If we want to add graphics using asp.net which of the following web controls will you use?
   a) Link Button b) AdRotator
   c) Grid View d) Layout

5) ASP.NET Validation Control works at _____.
   a) Client side only b) Server side only
   c) Both (a) & (b) d) None of the above

6) Which is the mandatory property for all validation controls?
   a) ControlToValidate b) Message
   c) EnableClientScript d) EnableServerScript

7) AJAX Stands for _____.
   a) Asynchronous Javascript & XML
   b) Asynchronous Java & XML
   c) Advanced Javascript & XML
   d) None of the above

8) Which is the default event of Button Control?
   a) Submit() b) Click()
   c) Load() d) DoubleClick()

9) Every server control must have an id.
   a) True b) False

10) Boolean is the DataType return in IsPostback property.
a) True b) False

B) Fill in the blank/Definition/One sentence answer/ One word answer/ Give the name/Predict the product etc. **06**

1) WSDL Stands for
2) SOAP stands for
3) Which validation control is used to set user own conditions
4) Write Default Event of DropdownList Control.
5) What is the file extension of a Global File?
6) List out button control.

Q.2 Solve any Eight of the following. **16**

a) Write a namespace for Sql Server Connection.
b) Explain self-page posting
c) Explain IsPostBack
d) Define Response.Redirect()
e) What is Multiview?
f) Explain Gridview
g) Which directive is used for master pages?
h) Explain calendar control
i) Define Response.Write()
j) Explain Skin File in.

Q.3 A) Attempt any Two of the following. **10**

1) What is Cross Page Posting?
2) Explain ScriptManager & ScriptManager Proxy
3) Explain AJAX in brief.

B) Short note/Solve. **06**

What is ASP.Net Website Lifecycle?

Q.4 A) Attempt any Two of the following. **08**

1) Define SiteMap Path Control
2) Explain List Controls in asp.net
3) Explain Update Panel in brief

B) Describe/Explain/Solve. **08**

Explain Client Side State management techniques.

Q.5 Attempt any Two of the following. **16**

a) Design a webpage to insert, update & delete student records.
b) Explain Validation controls with examples.
c) What is ASP.Net Page Lifecycle?

SLR-GD-56

Seat No.	

Set P

B.Sc. (E.C.S.) (Semester-VI) (New) (CBCS) Examination: March/April-2024
Angular JS (ECS0605)

Day & Date: Monday, 22-04-2024 Max. Marks: 80
Time: 03:00 PM To 06:00 PM

Instructions: 1) All questions are compulsory.
2) Draw neat labelled diagrams wherever necessary.
3) Figures to the right indicate full marks.
4) Use of log table and calculators is allowed.

Q.1 A) Multiple choice question. **10**

1) The _____ property returns True if the form input has not been used.
   a) $touched b) $dirty
   c) $pristine d) $invalid

2) The _____ directive is used if you want to add or remove HTML elements from the DOM based on data in the model.
   a) ng-switch b) ng-model
   c) ng-Disabled d) ng-Cloak

3) AngularJS module can be created using _____.
   a) angular.module(); b) module.create();
   c) angular.create(); d) var myModule =new module();

4) The _____ is used to create or process data from Http request.
   a) Module b) Directive
   c) Controller d) Service

5) The _____ directive is used to set one or more CSS property.
   a) ng-class b) ng-style
   c) ng-css d) ng-if

6) The _____ option of data filter is used to display the full month name (e.g., January)
   a) MONTH b) MMM
   c) MMMM d) M

7) The _____ method is used to executes an expression in angular outside the angular framework.
   a) $watch() b) $eval()
   c) $swith() d) $apply()

8) The AnguarJS application are started from _____ directive.
   a) ng-init b) ng-angular
   c) ng-app d) ng-start

9) The _____ method of string object returns a new string with a number of copies of a string.
   a) copies() b) repeat()
   c) replace() d) multiple()

10) What is output of following code?
var a = true+true+true*3;
Print(a)
a) 0 b) 3
c) 5 d) Error

B) Fill in the blanks. **06**

1) MVC stands for _____
2) json stands for _____
3) _____ is a software Code that controls the interactions between Model and View.
4) _____ keyword is used to declare constant data in JavaScript.
5) _____ statement in JavaScript is used to write Hello Word.
6) The external JavaScript file are stored using _____ extension.

Q.2 Answer the following. (Any Eight): **16**

a) What is one-way binding? Give example.
b) How to create JavaScript? Write example.
c) What are pre and post increment in JavaScript?
d) What is the use of filter filter.
e) What is bootstrapping in AngularJS?
f) What is the use of the ng-switch directive? Write example.
g) Explain the use of $http.
h) What is the use of the $apply() method in scope?
i) How to apply CSS classes and properties in AngularJS?
j) Write an example of the ng-repeat directive.

Q.3 A) Answer the following questions. (Any Two) **10**

1) What is the scope life cycle? Explain rootscope with an example.
2) What are validations? Explain different properties for validations with example.
3) Explain different Features of Angular JS.

B) How to throw our own exceptions in JavaScript? Explain with an example. **06**

Q.4 A) Answer the following questions. (Any Two) **08**

1) Write JavaScript for addition, multiplication, subtraction, and division of two numbers that are taken from the user.
2) What is dependency injection? Explain with an example.
3) What are different objects used in JavaScript? Explain any two objects in detail.

B) What is the controller? Explain Nested Controllers and Scope Inheritance with example. **08**

Q.5 Answer the following questions. (Any Two) **16**

a) What is the filter? Explain different built-in filters. Write a custom filter for word count in text.
b) Explain any two built-in services used in AngularJS. Write a program to create a date- time service that displays the current date and time and use that service.
c) How to create an array in JavaScript? Explain any four functions of an array object. Write a program for multiplication of matrix.

SLR-GD-57

Seat No.	

Set P

B.Sc. (E.C.S.) (Semester - VI) (New) (CBCS) Examination: March/April-2024

Mobile Application Development (Special Paper – XI) (ECS0606)

Day & Date: Tuesday, 23-04-2024 Max. Marks: 80
Time: 03:00 PM To 06:00 PM

Instructions: 1) All questions are compulsory.
2) Figures to right indicate full marks.
3) Draw neat labeled diagrams wherever necessary.

Q.1 A) Choose correct alternatives. **10**

1) For which of the following Android is mainly developed?
   a) Servers b) Desktops
   c) Laptops d) Mobile devices

2) APK stands for -
   a) Android Phone kit b) Android Page Kit
   c) Android Package kit d) None of the above

3) Which of the following converts Java byte code into Dalvik byte code?
   a) Dalvik converter
   b) Dex compiler
   c) Mobile interpretive compiler (MIC)
   d) ALL

4) What does AVD stand for?
   a) Android Virtual device b) Android Virtual display
   c) Active Virtual display d) Active Virtual device

5) Does android support other languages than java?
   a) Yes b) No
   c) May be d) Can’t say

6) Which of the following method is used to handle what happens after clicking a button?
   a) onClick b) onCreate
   c) onSelect d) None of the above

7) What is the default value of the orientation attribute in LinearLayout?
   a) Horizontal
   b) Vertical
   c) no default value of orientation attribute in LinearLayout
   d) None of the above

8) Android is based on Linux for the following reason.
   a) Security b) Portability
   c) Networking d) All of these

9) Which of the following is not a feature of Android?
   a) Connectivity b) Storage
   c) Slide Mobango d) Multi-touch

10) What is Manifest.xml in android?
   a) It has information about layout in an application
   b) It has the information about activities in an application
   c) It has all the information about an application
   d) None of the above

B) One word answer. **06**

1) Platform library contains?
2) What values folder contains?
3) In Android Studio, how many languages can we design Android apps?
4) Types of Intents.
5) What is OnPause() doing in Activity Lifecycle?
6) What android:layout_x() states.

Q.2 Solve any Eight of the following. **16**

a) List out Layouts in android.
b) Write use of execSQL() method.
c) Write types of menus in android?
d) What is a Broadcast receiver?
e) What is the use of Toast class?
f) What is the use of Image View?
g) Write types of picker view?
h) Which tag is used to add a new item to the list?
i) What is the use of Toggle Button?
j) What is the default orientation of Linearlayout?

Q.3 A) Attempt the following. (Any Two) **10**

1) Explain how to create the first android application step by step.
2) Explain RadioGroup and Radio Button?
3) What is SQLiteOpenHelper?

B) Explain Linear Layout. **06**

Q.4 A) Attempt the following. (Any Two) **08**

1) Explain Gallery and Image View views?
2) Explain Content Provider?
3) How can we introduce SMS Messaging in Android?

B) What are the basic views that can be used to design the UI of android applications? **08**

Q.5 Attempt the following. (Any Two) **16**

a) What is the lifecycle of Android activity?
b) What is the res (resource) folder content in the android framework?
c) Write a code (.xml) to design student registration activity?

SLR-GD-58

Seat No.		Set	P

B.Sc. (E.C.S.) (Semester-V) (New) (CBCS) Examination: March/April-2024
Web technology and E-commerce –I (2013505)

Day & Date: Wednesday, 22-05-2024 Max. Marks: 70
Time: 11:00 AM To 02:00 PM

Instructions: 1) All questions are compulsory.
2) Choose the correct alternatives.

Q.1 A) Multiple choice questions. **14**

1) _____ is the Data Type return in IsPost back property.
   a) bit b) Boolean
   c) int d) object

2) When does Garbage collector run?
   a) When application is running low of memory
   b) It runs random
   c) When application is running for more than 15 minutes
   d) None of the above

3) What happens in the Init event of a page?
   a) ViewState is loaded on the page.
   b) Each child control of the page is initialized to its design time values.
   c) HTML is rendered.
   d) None of the above.

4) Which validation control in ASP.NET can be used to determine if data that is entered into a TextBox control is of type Currency?
   a) ValidationSummary b) CompareValidator
   c) RequiredFieldValidator d) None of the above

5) If you want to cache the page according to the browser, then what will you do?
   a) <%@ OutputCache Duration=”500” VaryByParam=”none” VaryByCustom=”browser” %>
   b) <%@ OutputCache Duration=”500” VaryByParam=”none” VaryByHeader=”browser” %>
   c) <%@ OutputCache Duration=”500” VaryByParam=”browser” VaryByCustom=”none” %>
   d) None of the above

6) If you want to validate the email addresses, Social Security numbers, phone numbers, and dates types of data, which validation control will be used?
   a) RegularExpressionValidator b) CompareValidator
   c) RequiredFieldValidator d) None of the above

7) Client-side validation is turned on by default. If you want that particular validation control should not validate at client side, what will you do?
   a) Set the EnableClientScript property to false
   b) Set the validate property to false
   c) Set the EnableClientScript property to true
   d) Set the Page.Isvalid property to false

8) Which is the mandatory property for all validation controls?
   a) ControlToValidate b) Message
   c) EnableClientScript d) EnableServerScript

9) A web page has lots of input data, and you want the data input to be spread across multiple screens. What is the best control to implement this solution on a single Web page?
   a) ImageMap b) Panel
   c) Wizard d) None of the above.

10) Match the following List 1 (Controls) to List 2.

List 1	List 2
a) Image _____	i. Navigate, PostBack, Inactive HotSpotMode.
b) ImageButton _____	ii. Container control
c) ImageMap _____	iii. Has command event
d) MultiView_____	iv. Does not have click event

   a) a-ii, b-iv, c-i, d-iii b) a-ii, b-i, c-iii, d-iv
   c) a-iv, b-iii, c-i, d-ii d) a-iv, b-iii, c-i, d-ii

11) Which attribute is necessary for HTML control to work as a HTML server control?
   a) runat=”server” b) runat=”web-server”
   c) ID=”server” d) ID=”web-server”

12) _____ e-commerce consists of the sale of products or services from a business to the general public
   a) B2G b) B2E
   c) B2B d) B2C

13) What is/are true about master page? Choose the correct option.
   a) You can add more than one master page in a website.
   b) Master page can be nested.
   c) Content Place Holder control is required on a content page.
   d) Both A and B options are correct.

14) What is/are true about master page?
   a) Master page contains a <%@ Master %> directive instead of the normal <%@ Page %> directive.
   b) ContentPlaceHolder control can be added only on master page.
   c) You can add as many ContentPlaceHolders to a Master Page as you need.
   d) All of the above.

Q.2 Answer the following. (Any Seven) **14**

a) What is the use of @import directive?
b) List out the event ordering of Master Page.
c) List out the various application folders.
d) What is the use of Skin file?

e) Define E-commerce.
f) What is the use of DropDownList?
g) What is IsPostBack?
h) What is the use of InitialValue required field validator?
i) Give the need of master page.

Q.3 A) Attempt any Two of the following. **10**

1) Explain compilation process of ASP page in detail.
2) Differentiate client-side and server-side validation.
3) What is Supply chain? Explain with suitable diagram.

B) Explain ASP Page event in detail. **04**

Q.4 A) Attempt any Two of the following. **14**

1) Explain Tread cycle of E-commerce in detail.
2) Explain the concept of Nesting Master pages with example.
3) What is use of server control? Explain the TextBox and ListBox control in detail.

Q.5 Attempt any Two of the following. **14**

a) What is validation? What are the different types of validation control? Explain in detail any one.
b) Explain Porter's value chain in detail.
c) What is @page Directive? Explain in detail.

SLR-GD-60

Seat No.	

Set P

B.Sc. (E.C.S.) (Semester - III) (CBCS) Examination: March/April-2024
Object Oriented Programming Using C++ (2013301)

Day & Date: Wednesday, 22-05-2024 Max. Marks: 70
Time: 03:00 PM To 06:00 PM

Instructions: 1) All questions are compulsory.
2) Draw neat diagrams wherever necessary.
3) Figures to the right indicate full marks.
4) Non programmable calculators are allowed.

Q.1 A) Multiple choice questions. **14**

1) In, CPP dynamic memory allocation is done with the help of _____ operator.
   a) malloc() b) calloc()
   c) new d) allocate

2) Static memory is allocated at the time of _____.
   a) Run time b) Compile time
   c) both a & b d) None of these

3) What is default access specifier for data members or member functions declared within a class?
   a) Public b) Protected
   c) Private d) depends on compiler

4) What is a copy constructor?
   a) constructor that allows a user to move data from one object to another
   b) A constructor to initialize an object with the values of another object
   c) A constructor to check the whether to objects are equal or not
   d) A constructor to kill other copies of a given object.

5) _____ header file is used to read and write data on files.
   a) fstream.h b) streamd.h
   c) streamfile.h d) None of these

6) Which of the following operator cannot be overloaded?
   a) . b) ::
   c) Both a & b d) ++

7) Compile time polymorphism is also called as _____.
   a) early binding b) static binding
   c) both a & b d) late binding

8) Which of these types is not provided by C but is provided by C++?
   a) int b) double
   c) float d) bool

9) Which symbol is used to create multiple inheritance?
   a) . b) ,
   c) :: d) >

10) _____ keyword is used to declare class in c++.
a) class b) classes
c) this d) do

11) _____ constructor have more than one constructor in a class with same name, as long as each has a different list of arguments.
a) Default b) Multiple
c) Copy d) None of these

12) Keywords are present in c++.
a) 32 b) 62
c) 63 d) 31

13) Which of the following is the original creator of the C++ language?
a) Dennis Ritchie b) Ken Thompson
c) Bjarne Stroustrup d) Brian Kernighan

14) Which of the following is not used as a file opening mode?
a) ios::trunk b) ios::binary
c) ios::in d) ios::ate

Q.2 A) Solve any Four of the following (Two marks each) **08**
1) List out the file stream class?
2) Write syntax for Dynamic initialization of variables.
3) What is meant by Operator overloading?
4) What is meant by Keyword?
5) What is meant by Polymorphism?

B) Write Notes on (Any Two) **06**
1) Explain Pure Virtual function.
2) Write difference between Procedure Oriented programming and Object oriented Programming and give one program from both.
3) Explain nesting of class in c++?

Q.3 A) Attempt any Two of the following. **08**
1) Write a C++ program for binary operator overloading.
2) Explain Destructor with example.
3) Parameter passing techniques.

B) Answer any One of the following.
1) Access Specifiers. **06**
2) Friend function.

Q.4 A) Attempt any Two of the following. **10**
1) Write a program check given number is Perfect or not using function.
2) What is File? Explain Operations on file.
3) What is function? Explain function overloading with example.

B) Answer any One of the following. **04**
1) Inline function.
2) Command Line Argument.

Q.5 Attempt any Two of the following. **14**
a) What is Inheritance? Explain types of inheritance with example.
b) What is Constructor? Explain Default and Copy constructor with example.
c) What is Function? Explain function prototyping with example.