SLR-DD-1

Seat No.	

Set P

B.Sc. (E.C.S) (Semester - I) (New) (CBCS) Examination: Oct/Nov-2023
ENGLISH (COMPULSORY)
Communication Skill (ECS1101)

Day & Date: Monday, 20-11-2023 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 alternative from the given options. **08**

1) Where did Gandhi meet his missionary friends?
   a) Orissa b) Vellore
   c) Madras d) Panji

2) What was the school attached to?
   a) Bus stand b) Hospital
   c) Temple d) Library

3) According to Rabindranath Tagore what is necessary to win freedom?
   a) Patience b) Friends
   c) Allies d) Wars

4) Who sang praises for the flowers?
   a) Bard b) Oracle
   c) Saints d) Birds

5) How does the father discover the son in his room?
   a) Sleeping b) Sobbing
   c) Playing d) Reading

6) What is the suitable prefix of the word – Legal?
   a) unlegal b) illegal
   c) inlegal d) delegal

7) What is the suitable suffix of the word – Manage?
   a) Manage b) Management
   c) ill manage d) Pre manage

8) Which of the following is used to join sentences, clauses and words?
   a) adverbs b) interjection
   c) conjunction d) verb

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

a) What is the context of Gandhi's talk on religion?
b) What kind of relationship did the author have with his grandmother?
c) Discuss the poet's state of mind in the poem - Let Me Not Pray to be Sheltered from Danger.
d) Discuss the theme of the poem - The Lotus.
e) Define the ending of the poem - The Toys in your words.
f) What is the significance of the Sparrows in the lesson - The Portrait of a Lady'?

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

a) Define what is Communication and the process of Communication?

OR

b) Write in detail about the channels of Communication.

Q.4 Write a detail note on various intrapersonal skills? **10**

SLR-DD-2

Seat No.	

Set P

B.Sc. (E.C.S) (Semester - I) (New) (CBCS) Examination: Oct/Nov-2023
Fundamental of Computer (ECS1102)

Day & Date: Tuesday, 21-11-2023 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) What is the full form of CPU?
a) Computer Processing Unit b) Computer Principle Unit
c) Central Processing Unit d) Control Processing Unit

2) The binary equivalent of the decimal number 10 is _____.
a) 0010 b) 10
c) 1010 d) 010

3) The octal equivalent of 1100101.001010 is _____.
a) 624.12 b) 145.12
c) 154.12 d) 145.21

4) Which one of these is characteristic of RAID 5?
a) Distributed parity b) No Parity
c) All parity in a single disk d) Double Parity

5) 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

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

7) 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

8) _____ is most common input device used in computer.
a) Keyboard b) Light pen
c) Scanner d) Joystick

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

a) What is a volatile and non-volatile memory?
b) Define Computer.
c) List out characteristics of the computers.
d) Define serial port and parallel port.
e) Define Interpreter.
f) What is application of MICR?

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

a) Solve the followings:

1) $(101011.110)_8 = (?)_{10}$
2) $(1B.2D)_{16} = (?)_{10}$
3) $(128.36)_{10} = (?)_2$
4) $(11.10)_{10} = (?)_{16}$

b) What is scanner? Explain types of scanner.

c) What is Printer? Explain types of Printers in detail.

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

a) What is Secondary Memory? Explain its types in detail.

b) Explain Motherboard in detail.

c) Explain block diagram of computer in detail.

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

a) Explain RAID and its levels 0, 1, 5, 6 and 10.

b) Define Computer Language? Explain types of Computer language.

SLR-DD-3

Seat No.	

Set P

B.Sc. (E.C.S.) (Semester – I) (New) (CBCS) Examination: Oct/Nov-2023
Basics of Operating System (ECS1103)

Day & Date: Wednesday, 22-11-2023 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 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.

2) A program in execution is called _____.
   a) Process b) Instruction
   c) Procedure d) Function

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

5) "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

6) The degree of Multiprogramming is controlled by _____.
   a) CPU Scheduler b) Context Switching
   c) Long-term Scheduler d) Medium term Scheduler

7) Process is called as a _____ entity.
   a) Passive b) Active
   c) non active d) none of these

8) 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 the above

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

a) Define Operating systems.
b) What is mean by Multiprogramming?
c) What is mean by Real time system?
d) What is mean by Context Switching?
e) Define the term Semaphores.
f) What is mean by Scheduling?

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

a) Process Control Block
b) FCFS Scheduling algorithms
c) Time Sharing Operating System

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

a) Explain the different Services provided by Operating System.
b) Explain the different Scheduling criteria in detail.
c) What is process? Explain process state with block diagram.

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

a) Define Process Synchronization. Explain Dinning Philosopher problem.
b) Explain Priority Scheduling Algorithms with example.

SLR-DD-4

Seat No.	

Set P

B.Sc. (E.C.S.) (Semester - I) (New) (CBCS) Examination: Oct/Nov-2023
Programming using 'C' (ECS1104)

Day & Date: Thursday, 23-11-2023 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 correct alternatives. (MCQ) **08**

1) How is an array initialized in C language?
a) int a[3] = {1,2,3}; b) int a = {1,2,3};
c) int a[] = new int[] d) int a(3) = [1,2,3];

2) Which of the following is an exit-controlled loop?
a) while b) do while
c) for d) All of these

3) Which of the following is true for variable names in C?
a) They can contain alphanumeric characters as well as special characters
b) It is not an error to declare a variable to be one of the keywords (like goto, continue)
c) Variable names cannot start with a digit
d) All of these

4) Which of these is NOT a relational or logical operator?
a) = b) | |
c) == d) !=

5) We cannot use the keyword 'break' simply within _____.
a) while b) for
c) if-else d) do-while

6) What is an Identifier in C Language.?
a) Name of a variable b) Name of a function
c) Name of array d) All of these

7) Number of Keywords present in C Language are _____?
a) 32 b) 34
c) 36 d) 38

8) Each statement in a C program should end with _____?
a) Semicolon ; b) Colon :
c) dot symbol . d) None of these

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

a) What is the difference between operator precedence and operator associativity?
b) State the characteristics of an algorithm.
c) Draw a structure of a 'C' program.
d) What is recursion?
e) How pointer is initialized? Give an example.
f) Draw a syntax of switch statement.

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

a) Differentiate between break and continue statement with example.
b) Define array. Write a program to display an array in reverse order.
c) What is pointer? Explain chain of pointer with example.

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

a) Define function. Explain types of user defined function.
b) Difference between call by value and call by reference.
c) Write an algorithm to check a number is PRIME or not.

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

a) What is string? Explain all string handling functions with example.
b) Define Flowchart. What are the advantages and disadvantages of using flowchart. Explain all flow-charting symbols with example.

SLR-DD-5

Seat No.	

Set P

B.Sc. (E.C.S.) (Semester - I) (New) (CBCS) Examination: Oct/Nov-2023
PYTHON – I (ECS1105)

Day & Date: Friday, 24-11-2023 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 used to enclose strings?
   a) Single quotes
   b) Double quotes
   c) Either single quotes or double quotes
   d) ! symbol

2) Which of the following is not a core data structure in Python?
   a) List b) Module
   c) Dictionary d) Tuple

3) The standard python compiler is written in _____ language.
   a) python b) 'C++'
   c) Java d) 'C'

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

5) Which of the following is used to initialize multiple variables with a common value?
   a) x = y: y = 33 b) x = y = z = 33
   c) x = z; y = z; x = 33; d) x & y & z = 33

6) What will .be the output after the following statements?
```
x = 'Python Pi Py'
print(x.find('p'))
```
   a) -1 b) 0
   c) 1 d) 3

7) 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

8) What will be the output after the following statements?
```
x = 30
y = 7
x %= y
print(x)
```
   a) 4 b) 28
   c) 2 d) 37

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

a) Write down syntax and example of for loop.
b) What is the use of PVM?
c) Define comments in python.
d) What is identifier in python?
e) Write the syntax of if and if-else statements.
f) Write down syntax and example of importing array module.

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

a) What is Dictionary? Explain any 6 methods of Dictionary with example.
b) Explain Input and output statements in python.
c) Write a program to check given number is prime or not.

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

a) Explain any eight features of python.
b) What is List? Explain any 6 methods of List with example.
c) Write a program to find the largest number input from the user.

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

a) Explain indexing and slicing on arrays? What are the types of arrays explain with example.
b) What are the different types of type conversion? Explain with example.

SLR-DD-6

Seat No.		Set	P

B.Sc. (E.C.S.) (Semester - I) (New) (CBCS) Examination: Oct/Nov-2023
Numerical Methods (ECS1106)

Day & Date: Saturday, 25-11-2023 Max. Marks: 40
Time: 09:00 AM To 11:00 AM

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

Q.1 Choose the correct alternative from the following options. **08**

1) While doing the division of two numbers in normalized floating point, the exponents should be _____.
a) Added b) Subtracted
c) Divided d) multiplied

2) $0.1234\ E_4 \times 0.8735\ E_4\ =$ _____.
a) $1.2345\ E_4$ b) $0.1078\ E_8$
c) $0.1078\ E_4$ d) $0.1078\ E_0$

3) By Euler method $y_1\ =$
a) $f(x)$ b) $y_0 + f(x_0, y_0)$
c) $hf(x_0, h)$ d) $y_0 + hf(x_0, y_0)$

4) $0.3546\ E_6\ +\ 0.4687\ E_5 =$
a) $4.0147\ E_5$ b) $0.1078\ E_6$
c) $0.1078\ E_4$ d) $0.1078E_0$

5) If the data is equally spaced and interpolation is near the beginning of the data then _____ interpolation formula is used.
a) Newton's Forward Difference b) Newton's Backward Difference
c) Newton's Divided Difference d) Lagrange's

6) _____ method is used to solve ordinary differential equation.
a) Gaussian b) Euler's
c) Aitken's $2\ \Delta$ d) Newton's

7) $0.4399\ E_{10}\ \times\ 0.5789\ _{-12} =$
a) $0.2547\ E_{-2}$ b) $0.2547\ E_2$
c) $0.2547\ E_{22}$ d) $0.2547\ E_3$

8) Simpson's $(3/8)^{\text{th}}$ rule is obtained by putting n = _____ in general quadrature formula.
a) 0 b) 1
c) 2 d) 3

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

a) State Trapezoidal rule for integration.

b) State general quadrature formula.

c) State Simson's $1/3^{\text{rd}}$ rule for integrations.

d) State divide difference table for $x0, x1, x2, x3, x4$ and $y0, y1, y2, y3, y4$

e) Prepare forward difference table for the following data:

x	10	12	14	16
$y = f(x)$	55	77	103	128

f) Find the value of $0.5624E_{-9} + 0.8238E_{-9}$

Q.3 A) Write Notes on any one of the following. **03**

1) What is degree and order of a differential equation?

$\left(\frac{d^3y}{dx^3}\right)^2 = 3x^2 - y$

2) What is absolute error, relative error and percentage error?

B) State the formulae for K_1 , K_2 , K_3 & K_4 of Runge-Kutta IVth order method. **05**

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

a) Evaluate $\int_0^4 (1 + 2x)dx$ dividing the interval $[0,4]$ into 4 equal subintervals, by Simpson's $1/3\text{rd}$ rule.

b) If $f(2) = 5, f(4) = 9, f(6) = 24$, Then find $f(3)$ by Lagrange's interpolation formula.

c) Use Euler's method to estimate value of y at $x = 1.4$ for the differential equation

$\frac{dy}{dx} = x^2 + y$ Given that $y(1) = 2, h = 0.1$

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

a) Use Runge-Kutta second and fourth order method to estimate value of y at $x = 1.1$ for the ordinary differential equation

$\frac{dy}{dx} = 3x + y^2$ Given that $y(1) = 1.2, h = 0.1$

b) Estimate the value of y at $x = 6$, by using Newton's forward and interpolation formula for the data given below: also find backward difference table.

x	4	8	12	16	20
$y = f(x)$	8	37	87	105	167

SLR-DD-7

Seat No.	

Set P

B.Sc. (E.C.S.) (Semester - I) (New) (CBCS) Examination: Oct/Nov-2023
Graph Theory (ECS1107)

Day & Date: Sunday, 26-11-2023 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 diagram wherever necessary.

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

1) If both the set of vertices and edges are finite then the graph is called _____.
a) Finite b) Infinite
c) Vertex deleted d) None of these

2) A walk in which there is no repetition of any vertices is called _____.
a) path b) trail
c) tour d) none of these.

3) A graph having parallel edges but not loop is called _____ graph.
a) pseudo b) multi
c) simple d) none of these

4) A graph having only one component is called _____ graph.
a) disconnected b) multi
c) connected d) none of these.

5) The number of edges incidence of vertex V is called _____ of a vertex.
a) degree b) order
c) vertex d) none of these.

6) The total edges of K7 graph is _____.
a) 10 b) 42
c) 21 d) 8

7) A connected circuit free graph is called _____ graph.
a) simple b) null
c) tree d) none of these

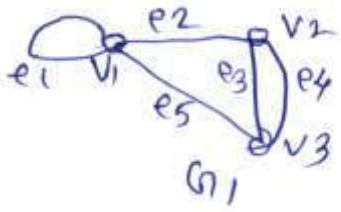
8) _____ algorithm is used to find shortest spanning tree.
a) Dijkstras b) Kruskals
c) Warshalls d) None of these

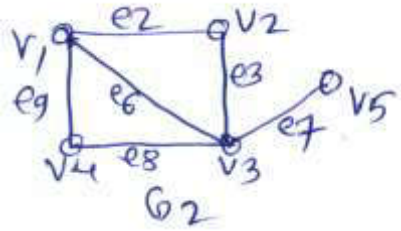
Q.2 Answer any four of the following. **08**

a) Define Simple graph with one suitable example.
b) Define Binary Tree with one suitable example.
c) Define regular graph with one suitable example.
d) Draw the graph K5 and N6.
e) Define Eulerian graph with one suitable example.
f) Define Path with one suitable example.

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

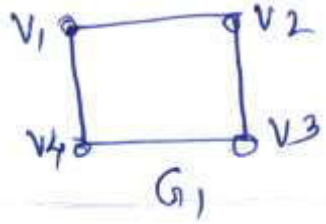
a) Verify Hand-Shaking lemma with suitable examples.
b) 1) Draw a Hamiltonian graph but not Eulerian graph
2) Eulerian but not Hamiltonian graph.
c) Find $G1 \cup G2$ and $G1 \cap G2$ of two graphs.

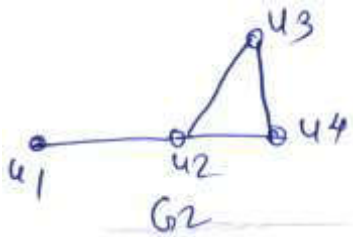




Q.4 Answer any two of the following. **08**

a) Find $G1 \times G2$ of two graphs.

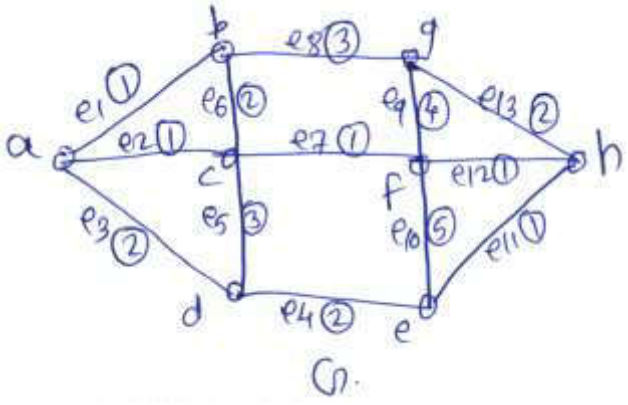




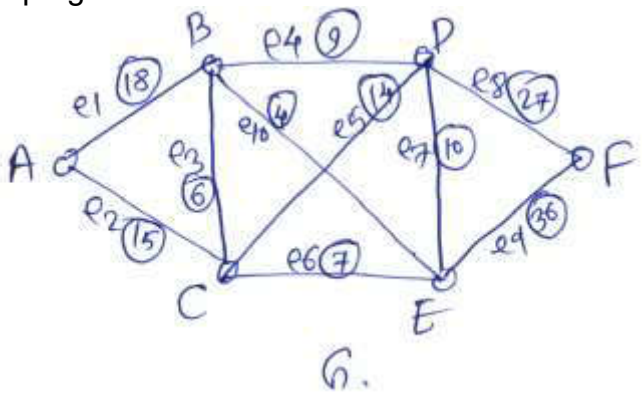
b) Write note on matrix representation of graph.
c) Define Trail and circuit with suitable example

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

a) By using Kruskals algorithm find shortest spanning tree of the graph given bellow



b) By using Dijkstras shortest path algorithm find shortest path from A to all vertices of the graph given bellow.



G.

SLR-DD-8

Seat No.	

Set P

B.Sc. (E.C.S.) (Semester - I) (New) (CBCS) Examination: Oct/Nov-2023
Basic Electronics (Paper - I) (ECS1108)

Day & Date: Tuesday, 28-11-2023 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) Non programmable calculators are allowed.

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

1) _____ is unit of resistance.
a) farad b) ohm
c) henry d) volt

2) Non electrolyte capacitor uses _____ plate.
a) aluminum b) germanium
c) insulator d) silicon

3) _____ eV is energy gap VB and CB in conductor.
a) 0 b) 1
c) 2 d) 5

4) _____ is used as dielectric in electrolyte capacitors.
a) SiO2 b) Al2O3
c) Al2O d) Al2O4

5) In N type semiconductor _____ are free.
a) holes b) electrons
c) protons d) charge

6) Depletion layer is generated at _____ in diode.
a) cathode b) anode
c) junction d) battery

7) Ripple factor of bridge wave rectifier is _____.
a) 48 b) 0.48
c) 1.20 d) 1.21

8) BJT is _____ device.
a) bipolar b) unipolar
c) neutral d) none of these

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

1) Define resistance.
2) Define N type semiconductor.
3) Draw block diagram of NMOS.
4) Write application of transformer.
5) Define electronic components.
6) Define PIV of rectifier.

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

a) Explain 3 pin IC voltage regulator.
b) Explain light emitting diode.
c) Classify and explain fixed resistor.

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

a) Explain air gang capacitor.
b) Explain wire wound potentiometer.
c) Explain working SMPS.

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

a) Explain depletion and enhancement MOSFET.
b) Define inductor and explain step down, step up transformer.

SLR-DD-9

Seat No.	

Set P

B.Sc. (E.C.S.) (Semester - I) (New) (CBCS) Examination: Oct/Nov-2023
Advanced Electronics (Paper – II) (ECS1109)

Day & Date: Wednesday, 29-11-2023 Max. Marks: 40
Time: 09:00 AM To 11:00 AM

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

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

1) _____ material is used for red color LED.
a) GaAs b) GaPs
c) Gas d) GaAsP

2) _____ no of components are fabricated in LSI IC.
a) 10 to 100 b) 100 to 5000
c) 100 to 50000 d) 20 to 30

3) _____ is used in TTL sub family.
a) ALS b) PLS
c) DLS d) CLS

4) Washer type thermistor has 12.5 to _____ mm diameter.
a) 20 b) 30
c) 40 d) 50

5) IC uses _____ type epitaxial layer.
a) N b) P
c) PN d) NP

6) Above 50000 components are fabricated in _____ IC.
a) VLSI b) MSI
c) SSI d) ULSI

7) _____ is material used for LCD.
a) indium oxide b) silicon oxide
c) tin oxide d) gallium oxide

8) LCD is _____ device.
a) input b) storage
c) output d) none of these

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

a) Define linear IC.
b) Define resistor.
c) Write application of seven segment display.
d) Define SMT and SMD.
e) Explain SSI subfamily.
f) Define insulator.

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

a) Explain photodiode.
b) Explain LCD.
c) Explain fabrication resistor and capacitor.

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

a) Explain working of LED display.
b) Explain multilayer PCB.
c) Explain MOS family.

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

a) Explain fabrication process for integrated circuits.
b) Explain thermistor and optocoupler.

SLR-DD-10

Seat No.	

Set P

B.Sc. (E.C.S) (Semester - II) (New) (CBCS) Examination: Oct/Nov-2023
COMPULSORY ENGLISH
Communication Skill (ECS1201)

Day & Date: Saturday, 02-12-2023 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 alternative from the given options. **08**

1) A talk must be intermingled with a quantity of _____.
a) anger b) jest
c) tears d) boredom

2) Traditional education kills the very _____ of the budding learners.
a) initiative b) initials
c) intimations d) insecurity

3) To Tagore, "The civilization of the West has in it the spirit of the _____.
a) alcohol b) machine
c) nature d) heaven

4) Niyi Osundare's "Our Earth Will Not Die" breathes a _____ attitude.
a) positive b) negative
c) no d) null

5) Alexander Pope considers simplicity and _____ to be assets of a successful life.
a) indulgence b) crowd
c) loneliness d) greediness

6) 'Gone far away into the silent land'. In this line 'the silent land' symbolizes _____.
a) life b) death
c) earth d) dream

7) They admit their crime. The antonym for 'admit' in this sentence is _____.
a) accept b) own
c) deny d) confess

8) The letter is _____ written by his elder brother.
a) being b) been
c) was d) be

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

a) Why did Francis Bacon give more importance to discretion than eloquence?
b) What was Bertrand Russell's experience with the squirrels?
c) How did Rabindranath Tagore assess the society of America?
d) Describe the central theme of Niyi Osundare's "Our Earth Will Not Die".
e) Bring out the farmer's life as seen in Alexander Pope's "Ode on Solitude".
f) What would happen if the partner of Christina Rossetti became sad after remembering her?

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

a) Write a letter of complaint to Sony TV Shop in Solapur about a television set you bought recently and was not functioning well. Address your letter to the Manager of the Shop.

OR

b) Write a letter inviting a famous local writer to attend the Annual Prize Distribution Function to be held in your college.

Q.4 Write an elaborate note on the interpersonal intelligence and its significance. **10**

SLR-DD-11

Seat No.	

Set P

B.Sc. (E.C.S) (Semester - II) (New) (CBCS) Examination: Oct/Nov-2023
Introduction to Web Technology (ECS1202)

Day & Date: Sunday, 03-12-2023 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 alternative from the options. **08**

1) Which of the following can read and render HTML web pages?
a) server b) head Tak
c) web browser d) empty

2) Full form of W3C is _____.
a) World Wide Websites community
b) World Wide Web community
c) World Wide Websites consortium
d) World Wide Web consortium

3) How many sizes of headers are available in HTML by default?
a) 5 b) 1
c) 3 d) 6

4) The full form of DOM is?
a) Document-oriented memory b) Document object model
c) Document object memory d) None of these

5) The integers in JavaScript are precise up to _____.
a) 12 digits b) 10 digits
c) 23 digits d) 15 digits

6) What is the default value of the JavaScript type attribute?
a) text/css b) text/javascript
c) html d) xml

7) In how many ways can CSS be written in?
a) 1 b) 2
c) 3 d) 4

8) The CSS property used to control the element's font-size is _____.
a) text-style b) text-size
c) font-size d) None of the above

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

a) What are some text formatting tags in HTML?
b) List JavaScript data types.
c) What is JavaScript?
d) Write syntax to introduce style sheets in HTML.
e) What is frames and <frame> tag.
f) Write features of HTML.

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

a) Explain JavaScript array with example.
b) Explain alert (), confirm () & prompt () method of window object.
c) Define the list types in HTML with example.

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

a) Define CSS & explain types of CSS with example.
b) Define Form, Explain action & method attribute of Form.
c) Define Table tag & their attributes with an example.

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

a) Define Function & write any six built in functions with example.
b) Explain various operators & data types available on JavaScript with example.

SLR-DD-12

Seat No.	

Set P

B.Sc. (E.C.S) (Semester - II) (New) (CBCS) Examination: Oct/Nov-2023
Operating System (ECS1203)

Day & Date: Monday, 04-12-2023 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 from the options. **08**

1) _____ is also known as 'Roll out' and 'Roll in'.
a) Process b) Swapping
c) Both a) and b) d) None

2) The Bleady's anomaly is related to _____ page replacement algorithm.
a) FIFO b) LRU
c) Optimal d) None of these

3) _____ file is saved with obj extension.
a) text b) batch
c) object d) excel

4) In segmentation logical memory is divided into _____.
a) pages b) frames
c) blocks d) segments

5) The Bankers algorithm is used to deadlock avoidance.
a) True b) False

6) Physical memory is divided into fixed size blocks called _____.
a) frames b) pages
c) backing store d) none of these

7) The _____ is used as an index into the page table.
a) frame bit b) page number
c) page offset d) frame offset

8) External fragmentation exists when?
a) enough total memory exists to satisfy a request but it is not contiguous
b) the total memory is insufficient to satisfy a request
c) a request cannot be satisfied even when the total memory is free
d) none of the mentioned

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

a) Define Deadlock.
b) What is page fault?
c) What is disk scheduling?
d) What is file? List out operations on file.
e) What is logical and physical address?
f) What is virtual memory?

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

a) Swapping
b) Deadlock detection and recovery
c) Types of file

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

a) What is fragmentation? Explain types of fragmentation.
b) Explain file Access methods in detail.
c) What is SCAN? Explain with example.

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

a) What is page replacement? Explain FIFO page replacement algorithm with example
b) What is deadlock avoidance? Explain banker's algorithm with example.

SLR-DD-13

Seat No.	

Set P

B.Sc. (E.C.S.) (Semester - II) (New) (CBCS) Examination: Oct/Nov-2023
Object Oriented Programming using C++ (ECS1204)

Day & Date: Tuesday, 05-12-2023 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 _____ classes define two functions get( ) and put( ).
   a) istream and ostream b) iostream
   c) ifstream d) None of these

2) _____ class can not be instantiated.
   a) Friend b) Abstract
   c) Inherited d) None of these

3) The pointers which are not initialized in a program are call _____.
   a) Value pointer b) NULL, pointer
   c) Void pointer d) None of these

4) The following which function is used to check the cureent position of an output stream?
   a) tellg b) tellp
   c) get( ) d) put( )

5) A reference variable must be initialized at the lime of _____.
   a) Use b) End
   c) Declaration d) None of these

6) one name, multiple forms is known as _____.
   a) Inheritance b) Polymorphism
   c) Both d) None of these

7) _____ function docs not have any definition in base class.
   a) Inline b) Friend
   c) Virtual d) Pure Virtual

8) The mechanism of deriving a class from another derived class is know _____.
   a) Multiple inheritance b) Multilevel Inheritance
   c) Derived Inheritance d) None of these

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

a) Define throw statement.
b) Benefits of OOP.
c) Define hierarchical inheritance.
d) What do you mean by dynamic binding?
e) Define this keyword.
f) What is a pure virtual function?

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

a) Explain Access Specifiers.
b) try-catch, finally block.
c) Draw file stream class hierarchy diagram and explain its members.

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

a) Write a program that implement dynamic binding concept.
b) Explain dynamic memory allocation operators suitable example.
c) Explain with a program to show multiple catch statements used to handle various types of exceptions.

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

a) Explain basic concepts of Object-Oriented programming.
b) What is the use of virtual function? Write a program using virtual function.

SLR-DD-14

Seat No.	

Set P

B.Sc. (E.C.S.) (Semester - II) (New) (CBCS) Examination: Oct/Nov-2023
Python - II (ECS1205)

Day & Date: Wednesday, 06-12-2023 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 alternative. **08**

1) Which of these is not a fundamental feature of OOP?
a) Encapsulation b) Inheritance
c) Instantiation d) Polymorphism

2) Which keyword is used for function?
a) Fun b) Define
c) def d) Function

3) Which module in Python supports regular expressions?
a) re b) regex
c) pyregex d) none of the mentioned

4) To open a file c:\scores.txt for reading, we use _____.
a) infile = open("c:\scores.txt", "r")
b) infile = open("c:\\scores.txt", "r")
c) infile = open(file = "c:\scores.txt", "r")
d) infile = open(file = "c:\\scores.txt", "r")

5) Which function overloads the + operator?
a) __add__() b) __plus__()
c) __sum__() d) none of the mentioned

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

7) To read two characters from a file object infile, we use _____.
a) infile.read(2) b) infile.read()
c) infile.readline() d) infile.readlines()

8) _____ is used to create an object.
a) class b) constructor
c) User-defined functions d) In-built functions

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

1) What method overloading?
2) What is abstract class?
3) What is super() method?
4) What is class and object?
5) Define function?
6) What is file? List out types of files.

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

a) Types of method.
b) Features of OOPs.
c) Lambda function.

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

a) Write a python program to check given number is odd or even by using function.
b) What is constructor? Explain with its types.
c) What is file? Explain modes of file with example.

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

a) What is inheritance? Explain any four types of inheritance with example.
b) What is exception handling? Explain in detail with example.

SLR-DD-15

Seat No.	

Set P

B.Sc. (E.C.S.) (Semester - II) (New) (CBCS) Examination: Oct/Nov-2023
Linear Algebra (ECS1206)

Day & Date: Thursday, 07-12-2023 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 Multiple choice questions. **08**

1) The imaginary part of complex number $z = -5 + 2i$ is _____.
a) -5 b) $-2i$
c) 2 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) If any two rows or columns of determinant are equal then its value is _____.
a) 1 b) -1
c) 0 d) non zero

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 rank of identity matrix is equal to _____.
a) 1 b) -1
c) its order d) 0

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) Find the modulus & argument of complex number $z = 2 + 2\sqrt{3}\,i$
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.

$$A = \begin{bmatrix} 1 & 2 & 1 & -1 \\ 1 & 2 & 3 & 0 \\ 2 & 4 & 3 & 0 \end{bmatrix}_{3\times 4}$$

b) Define symmetric and skew- symmetric matrix.

c) Find modulus and argument of the following complex number.
$z = 7 + 24i$

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

a) Solve the following linear equation by reduced row echelon form.
$x + y + 2z = 0;$
$2x + 4y - 3z = 1;$
$3x + 6y - 5z = 0;$

b) Solve by Cramer's rule
$2x - y + z = 1;\ x + 2y + 3z = 8;\ 3x + y - 4z = 1;$

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.

$$A = \begin{bmatrix} 1 & 2 & 7 \\ 2 & 1 & 0 \\ 0 & 1 & 3 \end{bmatrix}_{3\times 3}$$

SLR-DD-16

Seat No.	

Set P

B.Sc. (E.C.S.) (Semester - II) (New) (CBCS) Examination: Oct/Nov-2023
Discrete Mathematics (ECS1207)

Day & Date: Friday, 08-12-2023 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 Choose the correct alternative. **08**

1) Empty set is _____.
   a) Infinite set b) Finite set
   c) Singleton set d) None of these

2) If A = {1, 3, 5, 7, 9, 11,13,17} then $|A|$ = _____.
   a) 4 b) 8
   c) 6 d) 7

3) The function which is injective is also called _____ function.
   a) one-one b) Surjective
   c) Identity d) Injective

4) If $F(x) = (2x - 1)\ (x - 2)\ (x - 3)$ then $f(2)$ = _____.
   a) 6 b) 12
   c) 0 d) None of these

5) If every element of the set A is related to any each element of the set B then the relation is called as _____ relation.
   a) Reflexive b) Universal
   c) Void d) Identical

6) If n pigeon hole contains _____ pigeon the at least one pigeonhole contains more than one pigeon.
   a) n b) n+1
   c) 1 d) 2

7) Let R be a relation from the set A to the set B. Then the set of all first coordinates of the ordered pairs of R is called _____ of R.
   a) Domain b) Co-domain
   c) Range d) None of these

8) A singleton set contains _____ number of elements.
   a) finite b) one
   c) zero d) infinity

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

1) State the pigeonhole principle.

2) If $f(x) = 2x + 3$ then find the value of $f(-2) =$ _____.

3) Define union of two sets.

4) Define Homogeneous Recurrence Relation with constant coefficients.

5) Define equivalence relation.

6) Let R be the Relation on the Set $A = \{1, 2, 3, 4, 5\}$ given by
$R = \{(1,1), (1,3), (1,5), (2,4), (1,2), (3,5), (4,5)\}$
Find $M(R)$.

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

1) Solve the following recurrence relation $a_r - 8a_{r-1} + 16a_{r-2} = 0$

2) What is symmetric & anti symmetric relation.

3) State & prove Inclusive-exclusive principles for two sets.

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

1) Let $f: R \to R$ is defined by $f(x) = \frac{2x+3}{4}$ show that $f(x)$ is bijective function.

2) If $f(x) = 2x^2 + 6x$ then find:
i) $f(-1)$ ii) $f(3)$
iii) $f(x-1)$ iv) $f(-x)$

3) In a city 20% of population is travel by car 50% travel by bus & 10% travel by both car & bus, find the number of persons travel by,
i) bus or car ii) neither bus nor by car

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

1) Let R is a relation defined on set $A = \{1,2,3,4\}$ &
$R\{(1,1), (1,2), (1,4), (2,3), (2,4), (3,1), (3,2), (4,1), (4,3), (4,4)\}$
Find transitive closure of R by Warshall's algorithm.

2) Solve the recurrence relation $a_r - 7a_{r-1} + 10a_{r-2} = 0$ with initial conditions $a0 = 4, a1 = 17$

SLR-DD-17

Seat No.	

Set P

B.Sc. (E.C.S.) (Semester - II) (New) (CBCS) Examination: Oct/Nov-2023
Digital Electronics and Microprocessor (ECS1208)

Day & Date: Saturday, 09-12-2023 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 Choose the correct alternative. **08**

1) _____ basic gates.
a) nand b) nor
c) not d) all

2) Capacity of flifp to store _____ bit.
a) 1 b) 2
c) 3 d) 4

3) _____ OR gate IC.
a) 7432 b) 7400
c) 7408 d) None

4) HA consist _____ i/p and_____ o/p.
a) 2,2 b) 3,2
c) 3,3 d) 1,1

5) Shift register consist of _____.
a) all b) sr ffs
c) jk ffs d) d ffs

6) Data bus of 8085 is _____ bit.
a) all b) 14
c) 8 d) 16

7) _____ Data transfer instruction.
a) push b) add
c) inc d) none

8) _____ called data distributor.
a) mux b) dmux
c) encoder d) decoder

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

1) Define Full Adder
2) Define Encoder
3) Define Asynchronous Counter.
4) Define Shift Register
5) Define Addressing mode
6) Define Instruction

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

1) Application of logic gates
2) Application of mux
3) Master-slave FF's

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

1) Explain SISO shift register
2) Draw symbol of and truth table of NAND, NOR logic gate
3) Explain 4:1 MUX

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

1) Write feature of 8085
2) Define and explain addressing mode with one example of 8085.

SLR-DD-18

Seat No.	

Set P

B.Sc. (E.C.S) (Semester - II) (New) (CBCS) Examination: Oct/Nov-2023
Introduction to Microcontroller and Embedded System (ECS1209)

Day & Date: Sunday, 10-12-2023 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 Choose the correct alternatives from the options. **08**

1) The 8051 contain _____ general purpose register.
a) 30 b) 34
c) 25 d) none

2) _____ Pin provide an output read strobe to external program memory.
a) PSEN b) EA
c) RD d) None

3) A machine cycle of 8051 takes _____ oscillator.
a) 6 b) 8
c) 12 d) 4

4) The 8051 possesses an on chip serial port which is _____.
a) Half duplex b) Full duplex
c) Simplex d) none

5) There are _____ Number of interrupt in 8051.
a) 0 b) 1
c) 2 d) 5

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

7) _____ is a only register does not have an internal address.
a) PC b) SP
c) DPTR d) Accumulator

8) 8051 has _____ I/O port.
a) 3 b) 2
c) 4 d) 6

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

a) Define TMOD.
b) Define Embedded system.
c) Define Addressing mode.
d) State application of embedded system.
e) State advantage of embedded system.
f) Define Program counter.

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

a) Explain TCON register.
b) Explain SCON register.
c) Explain keil microvision simulator.

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

a) Explain basic structure of embedded system.
b) Explain classification of embedded system.
c) Write features of 8051.

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

a) Draw and explain a block diagram of 8051.
b) Explain steps involve in programming with keil micro simulation.

SLR-DD-19

Seat No.	

Set P

B.Sc. (E.C.S) (Semester - II) (Old) (CBCS) Examination: Oct/Nov-2023
ENGLISH (Comp.)
Literary Voyage (ECS0201) (ECS20201)

Day & Date: Saturday, 02-12-2023 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 alternative from the option. **08**

1) _____ is the memorable part of discourse.
a) To give opportunity b) To talk
c) To listen d) To lead

2) According to Bertrand Russell, _____ had only one year of schooling.
a) Earnest Barker b) John D. Rockefeller
c) Jay Gould d) Vanderbilt Commodore

3) _____ plays a huge role and affects to an entire country.
a) Intrigue b) Monarchy
c) Hope d) Dismay

4) _____ release the arsenic urine.
a) Chemicals b) Profit factories
c) Infected waste d) The earth

5) Alexandra Pope wrote in _____ era.
a) Anglo-Saxon b) Modern
c) Augustan d) Romantic

6) The poet wishes to hear _____ from the lover.
a) marriage plans b) future plans
c) about the work d) about the family

7) Identify the correct synonym.
Amazing
a) Inquire b) Special
c) Incredible d) Idea

8) I saw a brown bird when I _____ the window.
a) opened b) was open
c) will open d) have open

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

a) How is humour and jest important of discourse?
b) What opinions does the author have of education system of his time?
c) What is the true sense of freedom?
d) Discuss the theme of the poem – 'Our Earth Will Not Die.'
e) What picture of a farmer does Alaxander Pope present in the poem – Ode On Solitude?
f) What are Rossetti's thoughts about remembering the dead person?

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

a) Describe the process of making chapattis. Write the process step by step and use different linkers while writing the process.

b) Prepare a presentation on your favourite Cricketer / Film Hero / Heroine / National Leader, describing all the important details of them.

Q.4 Read the following advertisement and write an application letter for the post of a teacher based on the advertisement, giving all the details as required by it. **10**

Army Public School
Nigdi - Pune
Wanted
Teacher

Educational Qualification: BSc, BEd and as per CBSE by laws

Experience: Minimum 2 yrs. of experience, teaching to high school level

Interested candidates may forward their application letter along with their CV's, certificates at the email address: armypublicschool@gmail.com within 15 days of publishing the advertisement.

SLR-DD-20

Seat No.	

Set P

B.Sc. (E.C.S.) (Semester - II) (Old) (CBCS) Examination: Oct/Nov-2023
Programming in JAVA - I (ECS0202)

Day & Date: Sunday, 03-12-2023 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) Each question should only one correct option.

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

1) Which of these can be overloaded?
a) Methods b) Constructors
c) All of the mentioned d) None of the mentioned

2) What is the process of defining a method in terms of itself, that is a method that calls itself?
a) Polymorphism b) Abstraction
c) Encapsulation d) Recursion

3) What is the extension of java code files?
a) .class b) .java
c) .txt d) .js

4) What is the process by which we can control what parts of a program can access the members of a class?
a) Polymorphism b) Abstraction
c) Encapsulation d) Recursion

5) Which one of the following is not an access modifier?
a) Public b) Private
c) Protected d) Void

6) Which of this method is given parameter via command line arguments?
a) main () b) recursive() method
c) Any method d) System defined methods

7) Which of these data types is used to store command line arguments?
a) Array b) Stack
c) String d) Integer

8) Which of these class is used to create an object whose character sequence is mutable?
a) String() b) StringBuffer()
c) String() & StringBuffer() d) None of the mentioned

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

a) What is data type? List out data types in java.
b) What is array? List out types of array.
c) What is class and object?
d) What is operator? List out operators used in java.
e) What is type casting in java?
f) What is scanner class in java?

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

a) Features of java
b) Conditional statements
c) Method overloading

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

a) Explain the java architecture.
b) What is constructor? Explain in detail with example.
c) Write a java program to check given number is palindrome or not.

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

a) Explain all the looping statements with example.
b) What is string? Explain the methods of string with example.

SLR-DD-21

Seat No.	

Set P

B.Sc. (E.C.S) (Semester - II) (Old) (CBCS) Examination: Oct/Nov-2023
Programming in JAVA – II (ECS0203)

Day & Date: Monday, 04-12-2023 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 is a mechanism where one object acquires all the properties and behaviors of the parent object?
a) Inheritance b) Encapsulation
c) Polymorphism d) None of the above

2) Which provides accessibility to classes and interface?
a) Import b) Static import
c) All the above d) None of the above

3) Which is a superclass of all exception classes?
a) Throwable b) Exception
c) RuntimeException d) IOException

4) Which are also known as inner classes?
a) Non-static nested class b) Static nested class
c) Nested class d) None of the above

5) Which of these methods is defined in MouseMotionAdapter class?
a) mouseDragged() b) mousePressed()
c) mouseReleased() d) mouseClicked()

6) Which mechanism is provided to handle the runtime errors so that normal flow of the application can be maintained?
a) Exception Handling b) String Handling
c) Event Handling d) None of the above

7) Which of these keywords is used to define packages in Java?
a) pkg b) Pkg
c) package d) Package

8) Which method is called only many times during the run time of your applet?
a) stop() b) start()
c) init () d) Both a and b

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

a) What is inheritance?
b) What is Abstract class.
c) What is interface?
d) What is Exception handling?
e) What is applet?
f) Define package.

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

a) Wrapper classes.
b) Method overriding.
c) Java thread class.

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

a) Explain exception handling in detail with example.
b) What is package? Explain in detail.
c) Explain life cycle of applet.

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

a) What is inheritance? Explain all types of inheritance with example.
b) Explain the any four swing components with example.

SLR-DD-22

Seat No.		Set	P

B.Sc. (E.C.S) (Semester - II) (Old) (CBCS) Examination: Oct/Nov-2023
Discrete Structures – I (ECS0204)

Day & Date: Tuesday, 05-12-2023 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 calculator is allowed.

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

1) The order of recurrence relation $a_r - 7a_{r-1} + 10a_{r-2} = 0$ is _____.
a) 1 b) 2
c) 3 d) 4

2) If $n + 1$ objects are distributed into n boxes then at least one box contains _____ objects.
a) One b) More than one
c) 0 d) At least one

3) If $F(x) = (x - 1)(x - 2)(x - 3)$ then $f(4)$ = _____.
a) 6 b) 12
c) 24 d) None of these

4) If $A = \{1, 2, 3, 5, 6\}$ then $|A|$ = _____.
a) 4 b) 5
c) 6 d) 7

5) If no element of the set A is related to any element of the set B then the relation is called as _____ relation.
a) Reflexive b) Universal
c) Void d) Identical

6) If A and B are disjoint sets then, _____.
a) $|A| + |B| = 0$ b) $|A \cup B| = |A| + |B|$
c) $|A \cup B| = |A| + |B| - |A \cap B|$ d) None of these

7) If $f(a) = b$, then 'a' is called _____ of 'b' under function 'f'.
a) Image b) pri-image
c) Range d) Domain

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

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

a) Find the value of a_4 for the recurrence relation $a_n = 2a_{n-1} + 3$, with $a_0 = 6$.

b) Define infinite set with example.

c) If $|A| = 5, |B| = 12\ and\ |A \cap B| = 3$, Then find $|A \cup B|$

d) Let R is a relation defined on set $A = \{1,2,3\}$ & $R = \{(1,1),(1,2),(2,3),(3,1),(3,2)\}$ find Matrix relation M(R).

e) Define equivalence relation.

f) Define homogeneous recurrence relation with constant coefficient.

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

a) Find the character tics equation of recurrence relation & find its roots.
$a_r - 4a_{r-1} + 4a_{r-2} = 0$

b) Define inverse of function $f^{-1}(x)$. Also find the inverse of function $f(x) = \frac{2x+3}{5}$, where $f: R \to R$

c) **Define**

1) reflexive relation
2) symmetric relation
3) transitive relation
4) partial ordering relation

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

a) Let R is a relation defined on set $A = \{a, b, c\}$ & $R = \{(a,a),(a,c),(b,a),(b,b),(c,a),(c,b)\}$ find transitive closure of R by Warshall's algorithm.

b) Let A, B and C be any finite sets. Then prove that
$|A \cup B \cup C| = |A| + |B| + |C| - |A \cap B| - |A \cap C| - |B \cap C| + |A \cap B \cap C|$.

c) Let $f: R \to R$ is defined by $f(x) = \frac{4x-7}{6}$ show that $f(x)$ is injective & surjective function.

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

a) Solve the recurrence relation $a_r - 2a_{r-1} - 3a_{r-2} = 0$ with initial conditions $a_0 = 3$ & $a_1 = 1$.

b) State the first principle of mathematical induction & hence prove that
$1 + 2 + 3 + \_\_\_\_\_ + n = \frac{n(n+1)}{2}$, for all $n \geq 1$

SLR-DD-23

Seat No.	

Set P

B.Sc. (E.C.S) (Semester - II) (Old) (CBCS) Examination: Oct/Nov-2023
Discrete Structures – II (ECS0205)

Day & Date: Wednesday, 06-12-2023 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 calculator is allowed.

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

1) The ring sum of a graph G with itself is _____.
a) complete graph b) null graph
c) tree d) None of these

2) A tree with 21 vertices has _____ edges.
a) 20 b) 21
c) 19 d) 41

3) Number of edges in a graph having 4 vertices of degree 4, 1 vertex of degree 2 and 3 vertices of degree 4 are _____.
a) 14 b) 15
c) 10 d) None of these

4) A connected graph in which there exists _____ path between any two vertices is called as Tree.
a) Exactly one b) exactly two
c) many d) None of these

5) _____ subgraph of a graph G is always Edge deleted subgraph.
a) Any b) Spanning
c) Vertex deleted d) None of these

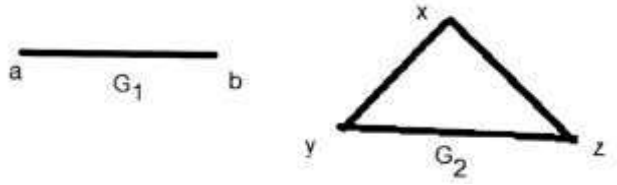
6) Order of adjacency matrix of a graph having 7 vertices and 19 edges is _____.
a) 7X7 b) 19X19
c) 7X19 d) 19X7

7) The number of edges in complete graph is K_5 _____.
a) 10 b) 22
c) 4 d) 17

8) A graph G is said to be _____ graph if its edge set is empty.
a) Null b) Pseudo
c) Tree d) None of these

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

a) Define simple graph with example.
b) Define Bipartite graph with example.
c) Define ring sum of two graphs.
d) Find G_1 X G_2 of following graphs.



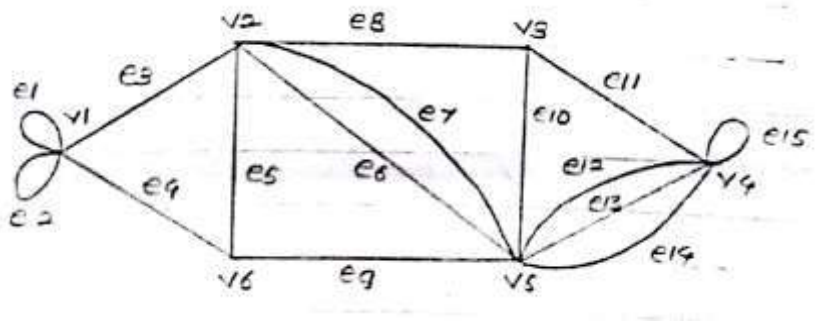
e) Define walk & circuit.
f) Draw the graph which has Eulerian as well as Hamiltonian circuit.

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

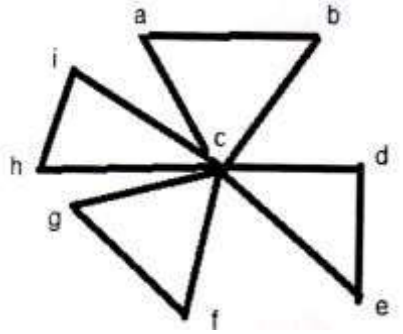
a) Prove that in graph G, the total degree of graph is equal to twice the number of edges.
b) Explain Kruskal's algorithm to find shortest spanning tree of graph.
c) Write the note on travelling salesman problem.

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

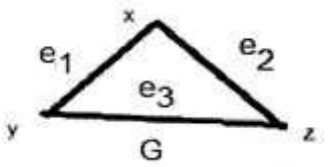
a) Find the adjacency matrix & incidence matrix of following graph.



b) What is Euler's graph? Show that following graph is Euler's graph.

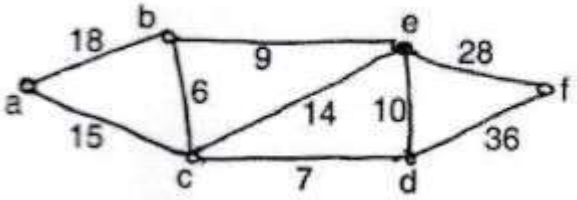


c) Draw all possible subgraph following graph.



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

a) Solve Chinese postman problem for the following graph.



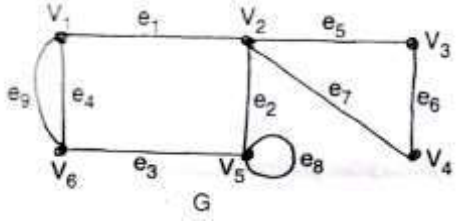
b) 1) Define vertex disjoint subgraph & edge disjoint subgraph.

2) From the following graph, draw one pair of each of the following subgraphs.

i) Vertex disjoint

ii) Edge disjoint

iii) Neither vertex disjoint nor edge disjoint.



SLR-DD-24

Set No.		Set	P

B.Sc. (E.C.S) (Semester - II) (Old) (CBCS) Examination: Oct/Nov-2023
Introduction to Web Designing – I (ECS0206)

Day & Date: Thursday, 07-12-2023 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.
2) Figures to the right indicate full marks.
3) 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) The body tag is usually used after _____.
   a) HTML tag b) EM tag
   c) HEAD tag d) TITLE tag

2) Who is Known as the father of World Wide Web (WWW)?
   a) Robert Cailliau b) Tim Thompson
   c) Charles Darwin d) Tim Berners-Lee

3) Which of the following is not a browser?
   a) Microsofts Bing b) Netscape Navigator
   c) Mozilla Firefox d) Opera

4) Which HTML tag produces the biggest heading?
   a) <h7> b) <h9>
   c) <h4> d) <h1>

5) HTML web pages can be read and rendered by _____.
   a) Compiler b) Server
   c) Web Browser d) Interpreter

6) What tag is used to display a picture in a HTML page?
   a) picture b) image
   c) img d) src

7) Apart from <b> tag, what other tag makes text bold?
   a) <fat> b)
   c) <black> d) <emp>

8) <a> and tags are used for?
   a) Adding image b) Aligning text
   c) Audio-voiced text d) Adding links

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

1) Explain the use of <p> tag?
2) What are web standards?
3) Create an HTML document to display the following text in the title bar of the browser. “Welcome to the world of computers”.
4) Display the following Text “India is my country” center aligned on the page
5) How do you give comments inside your source codes?
6) What is the role of <hr>tag? What are the various attributes it can take?

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

1) Basic structure of HTML
2) Ordered list and unordered list
3) <form>element used in HTML

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

1) Explain the use of column span and row span.
2) Create an internal hyperlink from the top of your page to the bottom of the same page.
3) Explain the brief history of Internet.

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

1) Create a webpage for Student Registration using different form controls.
2) Why we create a website? Explain basic principles involved in developing a web site.

SLR-DD-25

Seat No.	

Set P

B.Sc. (E.C.S.) (Semester - II) (Old) (CBCS) Examination: Oct/Nov-2023
Introduction to Web Designing – II (ECS0207)

Day & Date: Friday, 08-12-2023 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 Choose the correct alternative. **08**

1) Which tag is used to create a numbered list in HTML?
a) b)
c) d) <ll>

2) Which of the following CSS selector is used to specify a rule to bind a particular unique element?
a) tag b) id
c) class d) both class and tag

3) Which of the following CSS Property controls how an element is positioned?
a) static b) fix
c) position d) set

4) Which works similar to <i> element?
a) b)
c) <b> d) <blockquote>

5) Which of the following type of HTML tag is used to define an internal style sheet?
a) <script> b) <link>
c) <class> d) <style>

6) Which of the following is not set with font-style property?
a) font-style: capitalize b) font-style: italic
c) font-style: oblique d) font-style: normal

7) What is the use of <hr/> lag in HTML?
a) For making content appearance italics
b) To create vertical rule between sections
c) To create a line break
d) To create horizontal rule between sections

8) Which tag is used to create a blank line in HTML?
a) <b> b)
c) d) <a>

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

1) What is the use of <img>tag? Give the syntax of <img> tag.
2) What is an ID selector in CSS?
3) How to create hyperlinks in HTML?
4) Explain <frame> tag with its attributes.
5) What is image sprites?
6) What is pseudo class?

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

1) Attributes of <input> tag with an example

2) Padding and Margin in CSS

3) CSS Properties

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

1) Explain the basic table tags with the different attributes.

2) What are the different types of lists supported in HTML? Explain.

3) What is CSS? What are the advantages and disadvantages of using CSS in HTML?

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

1) What is a form? What are the major attributes of the form? Explain any six form components with example.

2) What is web hosting? What are the features provided in web hosting? What are the different types of web hosting?

SLR-DD-26

Seat No.	

Set P

B.Sc. (ECS) (Semester - II) (Old) (CBCS) Examination: Oct/Nov-2023
Digital Electronics – I (ECS0208)

Day & Date: Saturday, 09-12-2023 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 questions. **08**

1) (12)8 = (?)2
a) 111111 b) 001010
c) 000001 d) 011111

2) Base of bin number system is _____.
a) 8 b) 10
c) 16 d) 2

3) Full adder consist of _____.
a) 3i/p 2 o/p b) 2i/p 2o/p)
c) 3i/p 1o/p d) 3i/p 30/p

4) In k-map group of two ones calles as _____.
a) octet b) pair
c) both a and b d) none

5) _____ is parity checker gate.
a) and b) nand
c) OR d) x-or

6) _____ called as converter.
a) mux b) dmux
c) encoder d) flip flop.

7) SOP expression consist of _____ terms
a) MIN b) MAX
c) both a) and b) d) none

8) Ic 74150 is a _____.
a) mux b) dmux
c) encoder d) decoder

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

1) Define Encoder
2) Define decoder
3) Define half adder
4) Define k-map
5) Define multiplexer
6) Define demultiplexer

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

1) parallel adder
2) universal logic gates
3) 1’s compliment and 2's compliment.

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

1) Explain 4:1 Mux
2) Explain 3 line to 8 line decoder
3) State and prove De-Morgan's 2nd theorem

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

1) Perform subtraction using 2's compliment method (30-10)
2) Construct OR,AND gates using universal NAND.

SLR-DD-27

Seat No.	

Set P

B.Sc. (E.C.S) (Semester - II) (Old) (CBCS) Examination: Oct/Nov-2023
Digital Electronics – II (ECS0209)

Day & Date: Sunday, 10-12-2023 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) _____ is a one bit memory cell.
a) Mux b) counter
c) Register d) flip flop

2) In 3 bit PIPO shift register consist of _____ input and output.
a) 3:3 b) 3:2
c) 8:2 d) 3:1

3) _____ flipflop consist of race around condition.
a) JK b) D
c) S-R d) T

4) _____ permanent memory.
a) All b) rom
c) Ram d) none

5) In R-2R dac input is apply at _____ resister.
a) R b) 2R
c) All d) None

6) _____ ram does not require refresh pulse.
a) mux b) dmux
c) dram d) sram

7) Group of 4 flip flip store _____ bits.
a) 4 b) 8
c) 9 d) none

8) _____ is a universal shift register.
a) 7495 b) 7490
c) 7400 d) 8086

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

a) Define RAM.
b) Define DAC.
c) Define master slave flip flop.
d) Define dacade counter.
e) Define read access time of memory.
f) Define conversion time of ADC.

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

a) Explain clocked S-R flip flip.
b) Explain read write operation of memory.
c) State application of counter.

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

a) Explain mod 5 using IC 7490.
b) Explain master slave j k flip flop.
c) Explain SAR ADC.

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

a) Differentiate between EPROM and PROM.
b) Explain SISO shift register

SLR-DD-28

Seat No.	

Set P

B.Sc. (E.C.S.) (Semester - III) (New) (CBCS) Examination: Oct/Nov-2023
Data Structure using C++ - I (ECS1301)

Day & Date: Wednesday, 13-12-2023 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 correct alternatives. **08**

1) _____ is a pile in which items are added at one end and removed from the other.
a) stack b) queue
c) list d) none of these

2) The logical or mathematical model of a particular organization of data is called a _____.
a) Data Structure b) Data arrangement
c) Data configuration d) Data Formation

3) Each node in a linked list has two pairs of _____ and _____.
a) link field and information field b) link field and avail field
c) avail field and information field d) address field and link field

4) The data structure is which is one ended _____.
a) queue b) stack
c) tree d) graph

5) The situation when in a linked list START=NULL is _____.
a) underflow b) overflow
c) housefull d) saturated

6) What is the postfix form of the following prefix expression -A/B*C$DE?
a) abcde$*/- b) a-bcde$*/-
c) abc$ed*/- d) a-bcde$*/

7) A linear list in which each node has pointers to point to the predecessor and successors nodes is called as _____.
a) singly linked list b) doubly linked list
c) circular linked list d) linear linked list

8) In a circular queue the value of r will be _____.
a) r = r+1 b) r=(r+1)% [queue_size -1]
c) r=(r+1)% queue_size d) r=(r-1)% queue_size

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

a) Define nonlinear data structure and give examples.
b) Differentiate between STACK and QUEUE.
c) Define the term:
1) Time complexity
2) Space complexity
d) State the types of array with example.
e) What is Big-O notation?
f) State the applications of stack.

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

a) Array as an ADT
b) Greedy algorithm
c) Dynamic Stack

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

a) What is linked list? List the advantages of doubly linked list over singly Linked list.
b) Define Priority Queue. List the applications of Priority Queues.
c) Write a C++ program to create and display a Doubly Linked List.

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

a) Write a C++ program to implement Queue using arrays.
b) Explain about insertion and deletion of elements in a single linked list with examples.

SLR-DD-29

Seat No.		Set	P

B.Sc. (E.C.S) (Semester - III) (New) (CBCS) Examination: Oct/Nov-2023
Linux OS and Shell Scripting (ECS1302)

Day & Date: Thursday, 14-12-2023 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) _____ can be developed the Linux Operating System.
a) Stephen Bourne b) Linus Torvalds
c) Bill Joy d) David Korn

2) Maximum size of Linux filename is _____.
a) 128 bytes b) 32 bytes
c) 255 bytes d) 64 bytes

3) The system administrator is also called the _____.
a) super user b) root user
c) service user d) regular user

4) Which combination of keys is used to exit from terminal?
a) Ctrl + t b) Ctrl + z
c) Ctrl + d d) Ctrl + e

5) Which of the following OS is not based on Linux?
a) Ubuntu b) Redhat
c) CentOs d) BSD

6) Which command is used to get the kernel version in Linux?
a) uname -r b) kernel
c) uname -n d) uname -s

7) Which command is used to list all the files in your current directory?
a) ls -l b) ls -t
c) ls -a d) ls -i

8) Which command is used to change password of your Linux system?
a) password b) pass
c) change -p d) passwd

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

a) Define Shell and list out its any two types.
b) Define File System.
c) Define Super Block.
d) State purpose of $mkdir command
e) Define Shell Process?
f) What is use of FTP protocol?

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

a) Communication commands
b) Inode Block
c) Kill command

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

a) Explain Features of Linux O.S.
b) Define Text Editors? Explain Vi Editor with its modes?
c) Explain $grep Command with usage and syntax?

Q.5 Answers the following question. (Any One) **08**

a) Explain Linux O.S Architecture in brief.
b) Define System Administrator and State roles of System Administrator?

SLR-DD-30

Seat No.		Set	P

B.Sc. (E.C.S.) (Semester - III) (New) (CBCS) Examination: Oct/Nov-2023
Software Engineering (ECS1303)

Day & Date: Friday, 15-12-2023 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 main difference between Incremental Model and Spiral Model is_____.
a) Progress can be measured
b) Changing requirements can be accommodated
c) Users can see the system early
d) No difference between these two

2) Data dictionary is also called as_____.
a) Catalog b) Central repository
c) Both a & b d) None of these

3) 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

4) _____ system implementation approach should be used if you want to run the old system and the new system at the same time for a specified period.
a) Direct b) Pilot
c) Parallel d) Phased

5) What are the qualities of good software?
a) Reusability b) Portability
c) Inter-operability d) All of the above

6) During software development, which factor is most crucial?
a) People b) Product
c) Process d) Project

7) Decision table is a combination of _____.
a) Stubs and conditions b) Conditions and actions
c) Input and output d) None of these

8) In_____ system the interaction between various subsystems cannot be defined with certainty.
a) Open b) Closed
c) Deterministic d) Probabilistic

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

a) What is the purpose of HIPO chart?
b) Definition of software engineering.
c) Define Software risk management.
d) What is System Analysis?
e) What are the guidelines for drawing DFD?
f) Write down any four advantages of Prototype model.

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

a) Explain traditional and incremental approaches in detail.
b) Explain characteristics of software.
c) Explain V-shape model in detail.

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

a) What is Attribute? Explain types of attributes with example.
b) Explain Record reviews in detail.
c) What is System? Explain different elements of system.

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

a) What is Normalization? Explain up to 3NF.
b) What is Decision table? Explain its types with example.

SLR-DD-31

Seat No.		Set	P

B.Sc. (E.C.S.) (Semester - III) (New) (CBCS) Examination: Oct/Nov-2023
Database Management System-I (ECS1304)

Day & Date: Saturday, 16-12-2023 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) Rows of a relation are known as the _____.
a) Degree b) Tuples
c) Entity d) All of the above

2) The collection of information stored in a database at a particular moment is called as _____.
a) schema b) instance of the database
c) data domain d) independence

3) If user doesn't know anything about the complexity of database application then that user is called as _____.
a) Naive User b) Database Manager
c) Database Operator d) Database Administrator

4) In _____, we have a strict parent-child relationship only.
a) hierarchical databases b) network databases
c) object-oriented databases d) relational databases

5) Cartesian product in relational algebra is _____.
a) a Unary operator b) a Binary operator
c) a Ternary operator d) None of these

6) '2341' is a _____.
a) Integer b) floating point
c) String d) None of these

7) Which statement is used to remove indexes on tables?
a) Exit Index b) Delete Index
c) Remove Index d) Drop Index

8) What is the difference between a PRIMARY KEY and a UNIQUE KEY?
a) Primary key can store null value, whereas a unique key cannot store null value.
b) We can have only one primary key in a table while we can have multiple unique keys
c) Primary key cannot be a date variable whereas unique key can be
d) None of these

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

a) Define the terms i) Domain ii) Tuple
b) What is Join?
c) What is Normalization?
d) Define the terms: i) Degree ii) Cardinality
e) What is Index?
f) List the Limitations of file processing system.

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

a) What is Attribute? Explain different types of attribute.
b) Hierarchical Data Model.
c) Explain Select commands with example.

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

a) Explain any 4 String functions with example
b) What is sub query? Explain its type with example
c) What is View? Write the steps to Create, Update and Drop a view?

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

a) Explain Generalization and Specialization with example.
b) Explain Group by and having clauses with example.

SLR-DD-32

Seat No.	

Set P

B.Sc. (E.C.S.) (Semester - III) (New) (CBCS) Examination: Oct/Nov-2023
Probability Theory (ECS1305)

Day & Date: Sunday, 17-12-2023 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) The normal probability curve is _____.
   a) Bell shaped b) Symmetric
   c) Mesokurtic d) All of these

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) Let $P(A) = 0.4, P(B) = x$ if A and B are exhaustive events then $x =$ _____.
   a) 0.2 b) 0.5
   c) 1 d) 0.6

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 $X \rightarrow B(10, 0.4)$ then $V(X) =$ _____.
   a) 2.10 b) 2.40
   c) 3.00 d) 2.00

6) The Simple event is also known as _____ event.
   a) sure b) certain event
   c) both a and b d) elementary

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

8) 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

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

a) Define term permutation and combination.

b) Define Poisson distribution.

c) If a discrete r.v. X follows Binomial distribution with parameter $n = 9$ and $p = 0.7$ find mean and variance of the r.v. X

d) Define simple event.

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)	k	4k	3k	0.2

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

a) Write down the properties of discrete distribution function.

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

c) Prove that, Variance of any constant is zero i.e. $V(c) = 0$.

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

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

$f(x) = 3x^4$; $0 < x < 2$

$= 0$; otherwise

Find variance of X.

b) Show that, $P(\Phi) = 0$.

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

X	1	2	3	4	5
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 _____.

$f(x) = k(x-2)$; $0 < x < 2$

$= 0$; otherwise

Find:

1) k 2) c.d.f.

3) $E(x)$ 4) $V(x)$

b) State and prove addition law of probability.

SLR-DD-33

Seat No.		Set	P

B.Sc. (E.C.S.) (Semester - III) (New) (CBCS) Examination: Oct/Nov-2023
Data Science with Python (ECS1306)

Day & Date: Monday, 18-12-2023 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, 0=16, N= 14, Na =23, Cl = 35.5)

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

1) Choose the correct components of data science.
   a) Domain Expertise b) Data engineering
   c) Advanced computing d) All of above

2) Point out the correct statement.
   a) Raw data is original source of data
   b) Preprocessed data is original source of data
   c) Raw data is the data obtained after processing steps
   d) None of the mentioned

3) Which of the following is performed by Data Scientist?
   a) Define the question b) Create reproducible code
   c) Challenge results d) All of the mentioned

4) What is the purpose of NumPy in Python?
   a) To do numerical calculations b) To do scientific computing
   c) Both A and B d) None of the mentioned above

5) Amongst which Python library is similar to Pandas?
   a) NPy b) RPy
   c) NumPy d) None of the mentioned above

6) Amongst which of the following is true with reference to Pip in Python?
   a) Pip is a standard package management system
   b) It is used to install and manage the software packages written in Python
   c) Pip can be used to search a Python package
   d) All of the mentioned above

7) NumPy arrays can be _____.
   a) Indexed b) Sliced
   c) Iterated d) All of the mentioned above

8) Observe the following code and identify what will be the outcome?
```
Import numpy as np
A=np.array([1,2,3,4,5,6])
Print(a)
```
   a) [1 2 3 4 5] b) [1 2 3 4 5 6]
   c) [0 1 2 3 4 5 6] d) None of the mentioned above

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

a) What is numpy?
b) What are the operation on data frames?
c) What is data collection?
d) What is histogram?
e) Give example of Boolean index.
f) What is dataframe?

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

a) Explain data science lifecycle.
b) Explain reading and writing data in text format.
c) Write a program of slicing.

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

a) What is data cleaning? Explain data cleaning technique.
b) Explain multiple parameter testing by grid search.
c) Explain operations of data frames with example.

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

a) What is plot? Explain types of plot.
b) Write a program of unique sorting.

SLR-DD-34

Seat No.	

Set P

B.Sc. (E.C.S.) (Semester - III) (New) (CBCS) Examination: Oct/Nov-2023
Web Development using PHP (SEC-1)

Day & Date: Tuesday, 19-12-2023 Max. Marks: 80
Time: 09:00 AM To 12:00 PM

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

Q.1 A) Choose the correct alternative. **10**

1) Which of following is not a Superglobals in PHP?
   a) $_SERVER b) $_ENV
   c) $_FILES d) $_PUT

2) 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

3) PHP's numerically indexed array begin with position _____
   a) 0 b) 3
   c) -1 d) 2

4) The _____ function can be used to compare two strings using a case-insensitive binary algorithm
   a) strcmp() b) stricmp()
   c) strcasecmp() d) stristr()
   e) None of the above

5) When you use the $_GET variable to collect data, the data is visible to_____.
   a) none b) only you
   c) everyone d) selected few

6) Which one of the following property scopes is not supported by PHP?
   a) final b) static
   c) friendly d) public

7) Which superglobal stores a variety of information pertinent to a file uploaded to the server via a PHP script?
   a) $_FILE Array
   b) $_FILES Array
   c) $_FILES_UPLOADED Array
   b) $_FILE_UPLOADED Array

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

9) Which one of the following function is used to start a session?
   a) start_session() b) session_start()
   c) session_begin() d) begin_session()

10) 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()

11) 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 are the different types of PHP variables?
2) What is PHP?
3) Explain the syntax for 'foreach' loop with example.
4) What are the different types of Array in PHP?
5) How to concatenate two strings in PHP?
6) Explain setcookie() function in PHP?

Q.2 Answer the followings (Any Eight): **16**

a) List out different argument passing technique.
b) List out different functions used for comparing string with example.
c) What is multidimensional array? Explain with example.
d) Difference between Echo () and print () statement.
e) Explain ksort() function.
f) Explain do...while statement
g) What is Concatenation operators?
h) Explain UPDATE mysql query.
i) Explain trim() function.
j) Explain MYSQL data types.

Q.3 A) Answer the followings (Any two): **10**

1) Explain looping statement in detail.
2) Explain WebServers.
3) What is the use of session and cookies in PHP?

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

1) Explain MySQL Architecture.

OR

2) Explain $_GET and $_POST variable.

Q.4 A) Answer the followings (Any two): **08**

1) Explain different sorting techniques of arrays with proper examples.
2) Explain client side validation.
3) Differentiate between session and cookies.

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

1) Explain sticky form with example.

OR

2) Explain ereg(). List and explain with example special characters used in regular expressions.

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 to accept user name and password. If in first 3 chances, user name and password is correct then display second form, otherwise display error message.
c) Design web page which insert, delete and update records.

SLR-DD-35

Seat No.	

Set P

B.Sc. (E.C.S.) (Semester - III) (Old) (CBCS) Examination: Oct/Nov-2023
Data Structure using C++ - I (ECS0301)

Day & Date: Wednesday, 13-12-2023 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) Pushing an element into stack already having five elements and stack size of 5, then stack becomes _____.
   a) Overflow b) Crash
   c) Underflow d) User flow

2) A queue follows _____.
   a) FIFO (First In First Out) principle
   b) LIFO (Last In First Out) principle
   c) Ordered array
   d) Linear tree

3) Which of the following is not the type of queue?
   a) Ordinary queue b) Single ended queue
   c) Circular queue d) Priority queue

4) Which of the following is false about a doubly linked list?
   a) We can navigate in both the directions
   b) It requires more space than a singly linked list
   c) The insertion and deletion of a node take a bit longer
   d) Implementing a doubly linked list is easier than singly linked list

5) Which data structure is needed to convert infix notation to postfix notation?
   a) Branch b) Tree
   c) Queue d) Stack

6) What is the time complexity to insert a node based on position in a priority queue?
   a) O(nlogn) b) O(logn)
   c) O(n) d) $O(n^2)$

7) Circular Queue is also known as _____.
   a) Ring Buffer b) Square Buffer
   c) Rectangle Buffer d) Curve Buffer

8) Which data structure is used for implementing recursion?
   a) Queue b) Stack
   c) Array d) List

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

a) How circular queue is better than linear queue?
b) Write node structure for doubly linked list.
c) What is Greedy Algorithm?
d) Define Big O Notation.
e) What is ADT? Explain stack ADT?
f) What is two dimensional array?

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

a) What is priority queue explain it?
b) Difference between Array and linked list.
c) What is complexity? Explain how to analyze the complexity.

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

a) Describe in detail circular queue.
b) Write a program to implement Linked list with following operations.
  i) Insert first
  i) Delete first
  iii) Display list
c) Write a program to implement linear queue using array.

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

a) Explain doubly circular linked list with suitable example.
b) How to check expression is valid or not using stack?

SLR-DD-36

Seat No.		Set	P

B.Sc. (E.C.S) (Semester - III) (Old) (CBCS) Examination: Oct/Nov-2023
Data Structure Using C++ - II (ECS0302)

Day & Date: Thursday, 14-12-2023 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 Choose the correct alternatives from the options. **08**

1) In a simple graph, the number of edges is equal to twice the sum of the degrees of the vertices.
a) True b) False

2) What is a complete binary tree?
a) Each node has exactly zero or two children
b) A binary tree, which is completely filled, with the possible exception of the bottom level, which is filled from right to left
c) A binary tree, which is completely filled, with the possible exception of the bottom level, which is filled from left to right
d) A tree In which all nodes have degree 2

3) Which of the following is not a stable sorting algorithm?
a) Insertion sort b) Selection sort
c) Bubble sort d) Merge sort

4) The number of edges from the node to the deepest leaf is called _____ of the tree.
a) Height b) Depth
c) Length d) Width

5) Which of the following properties does a simple graph not hold?
a) Must be connected
b) Must be unweighted
c) Must have no loops or multiple edges
d) Must have no multiple edges

6) What is the worst case for linear search?
a) O(nlogn) b) O(logn)
c) O(n) d) O(l)

7) What is the average case complexity of bubble sort?
a) O(nlogn) b) O(logn)
c) O(n) d) $O(n^2)$

8) Which of the following sorting algorithm is of divide and conquer type?
a) Bubble sort b) Insertion sort
c) Merge sort d) Selection sort

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

a) Define strictly binary tree.
b) What is searching?
c) Define complete binary tree.
d) Define AVL tree.
e) What is sorting?
f) Define directed graph.

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

a) Dijakstra's shortest path algorithm
b) Post order traversing
c) Max heap

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

a) Sort following data by using insertion sort.
12,2,33,21,4,56,6,7,88,54,3
b) Explain BFS graph traversal method with example.
c) Write applications of tree.

Q.5 Answers the following question. (Any One) **08**

a) Explain sorting by using tree with example.
b) Sort following data by using bubble sort.
12,2,13,34,5,33,21,55,7,87

SLR-DD-37

Seat No.	

Set P

B.Sc. (E.C.S.) (Semester - III) (Old) (CBCS) Examination: Oct/Nov-2023
Software Engineering (ECS0303)

Day & Date : Friday, 15-12-2023 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) Problem identification is done during _____ phase.
   a) System design b) System analysis
   c) System testing d) All of the above

2) Quality Management in software engineering is also known as _____.
   a) SQA b) SQM
   c) SQI d) SQA and SQM

3) The old system is replaced by the new system is called _____.
   a) Fact finding b) Pilot
   c) Direct conversion d) Cutoff

4) The most important feature of spiral model is _____.
   a) Risk management b) Quality management
   c) Performance management d) Efficiency management

5) Selection of a model is based on?
   a) Requirements
   b) Development team & Users
   c) Project type and associated risk
   d) All of the mentioned

6) Which model can be selected if user is involved in all the phases of SDLC?
   a) Waterfall Model
   b) Prototyping Model
   c) RAD Model
   d) both Prototyping Model & RAD Model

7) If the effect in one module cause defects in another module then it is called as _____.
   a) Low coupling b) Low cohesion
   c) Ripple effect d) Triple effect

8) The modification of the software to match changes in the ever changing environment, falls under which category of software maintenance?
   a) Corrective b) Adaptive
   c) Perfective d) Preventive

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

1) Differentiate between Logical DFD and Physical DFD
2) What is the purpose of DFD?
3) Differentiate between structured and unstructured interview
4) What does Verification represent?
5) What is normalization?
6) What is decision table?

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

1) Feasibility study
2) Elements of the system
3) Structured English

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

1) Explain Waterfall model with diagram.
2) What is Data Dictionary? Explain the various content of DD.
3) Explain the various categories of maintenance.

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

1) Define the term Entity, Attribute and Relationship. Explain types of relationship with example.
2) Explain incremental approach to implementation. Give some benefits of it.

SLR-DD-38

Seat No.	

Set P

B.Sc. (E.C.S.) (Semester - III) (Old) (CBCS) Examination: Oct/Nov-2023
Software Testing (ECS0304)

Day & Date: Saturday, 16-12-2023 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) _____ testing is used to check the code?
a) Grey box testing b) Black box testing
c) White-box testing d) Red box testing

2) 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

3) Functional testing is a _____.
a) Test design technique b) Test level
c) SDLC Model d) Test type

4) Alpha testing is done at _____.
a) Developer's end b) User's end
c) Developer's & User's end d) None of the mentioned

5) Which of the following is/are White box technique?
a) Statement Testing b) Decision Testing
c) Condition Coverage d) All of the mentioned

6) Which of the below is not a part of the Test Plan?
a) Schedule b) Risk
c) Incident reports d) Entry and exit criteria

7) 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

8) What are the different levels of Testing?
a) Integration testing b) Unit testing
c) System testing d) All of the above

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

a) What is Traceability Matrix?
b) What is Black box testing?
c) What is Alpha testing and Beta testing?
d) What is the difference between Bug, Defect?
e) What is Test Execution Report?
f) What is the need of software testing?

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

a) Regression Testing
b) Bug/Defect Life Cycle
c) Test Case Template

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

a) What are the differences between Manual and Automation Testing.
b) Explain Software Test Life Cycle.
c) Explain White box testing.

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

a) Explain Functional Testing in detail.
b) Design test case for login page.

SLR-DD-39

Seat No.	

Set P

B.Sc. (E.C.S.) (Semester - III) (Old) (CBCS) Examination: Oct/Nov-2023
Probability Theory –I (ECS0305)

Day & Date: Sunday, 17-12-2023 Max. Marks: 40
Time: 09:00 AM To 11:00 AM

Instructions: 1) All questions are compulsory.
2) Draw neat diagrams and give equations 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) For an event A defined on Ω then P(A) is _____.
a) $-\infty \; to \; \infty$ b) $0 \; to \; 1$
c) $-1 \; to \; 1$ d) None of these

2) Which of the following distribution is mean=variance
a) Poisson distribution b) Binomial distribution
c) Normal distribution d) hyper geometric distribution

3) Let X be a discrete random variable with V(3X+4) is _____.
a) 3V (X) b) 9 V(X)
c) 12V (X) d) None of these

4) How many 4 digit number contain the digits 2,3,4,5 in some order?
a) 16 b) 8
c) 24 d) None of these

5) If A' is compliment of A with respect to Ω then P(A)+P(A') = _____.
a) 1 b) 0
c) -1 d) None of these

6) The distribution function is lies between _____.
a) $-1 \; to \; 1$ b) $0 \; to \; \infty$
c) $-\infty \; to \; \infty$ d) $0 \; to \; 1$

7) If a and b are constant then E(c) is _____.
a) c b) 0
c) 1 d) None of these

8) If $X \sim B(5,0.4)$ then $E(X)$ is _____.
a) 5 b) 0.4
c) 2 d) None of these

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

a) State Bayes theorem.
b) Define event and types of events.
c) How many different words can be formed by permuting all letters of the word 'APPLICATION'?
d) Explain the Properties of Cummulative distribution function.
e) Define Hyper geometric distribution with real life situations.
f) Define random variable and discrete random variable.

Q.3 Short notes on two of the following. **08**

a) Explain term Principles of counting.

b) If x is a discrete r.v with p.m.f $P(X = x) = \frac{x}{15}; X = 1, 2, 3, 4, 5$
$= 0 \quad ; o.w$

Find

1) $E(2X + 5)$
2) $V(3X - 4)$

c) Define Poisson distribution with real life situations and its additive property.

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

a) State and prove that

1) $E(aX + b) = a\,E(X)$
2) $V(a\,X + b) = a^2 V(X)$

b) Explain idea of deterministic and non-deterministic models with examples.

c) Explain the Combinations of 'r' objects taken from 'n' objects with an examples.

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

a) State recurrence relation between probabilities of

1) Poisson distribution
2) Binomial distribution

b) Define Axioms of probability. Show that

1) If A and B are two events defined on Ω such that $A \subset B\ then\ P(A) \leq P(B)$
2) If A and B are any two events defined on Ω then $P(A \cup B) = P(A) + P(B) - P(A \cap B)$

SLR-DD-40

Seat No.	

Set P

B.Sc. (E.C.S.) (Semester - III) (Old) (CBCS) Examination: Oct/Nov-2023
Probability Theory – II (ECS0306)

Day & Date: Monday,18-12-2023 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) If X is continuous r.v. with pdf $f(X)$. Then $\int_{-\infty}^{\infty} x^2 f(x)dx$ is _____.
a) $V(X)$ b) $V(X) + [E(X)^2]$
c) $E(X^2)$ d) None of these

2) If $X \to N\ (\mu = 50, \sigma^2 = 16)$. Then maximum height of its pdf curve is _____.
a) 60 b) 50
c) 16 d) None of these

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

4) If $X \to \text{Exp}\ (\theta = 1)$. Then $P(X > 2)$ is _____.
a) e^2 b) $1 + e^{-2}$
c) e^{-2} d) $1 + e^2$

5) Chi-square values ranges from _____.
a) -1 to 1 b) 0 to ∞
c) $-\infty$ to ∞ d) None of these

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

7) If $X \to U\ [a, b]$ then
a) $P(a \leq X \leq b) = 1$ b) $P(X \leq b) = 1$
c) $P(X > b) = 0$ d) All of these

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

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

a) Let X be a continuous r.v. with pdf
$f(X) = K(X-1)^2$; if $1 \leq X \leq 3$. Find value of K

b) Define Chi-square distribution.

c) Define probability density function of a continuous random variable and its expectation.

d) Define cumulative distribution function of an exponential distribution with mean θ.

e) Define null hypothesis and alternative hypothesis

f) If $X \rightarrow U(2,4)$, then Find $P(X < 3)$

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

a) Define Normal distribution. State the properties of normal distribution.

b) State and prove lack of memory property.

c) Define c.d.f. of continuous r.v. and state any three properties of it

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

a) The life time of certain battery is ar.v. which has an exponential distribution with mean 320 hours. What is the probability that such a battery will last at most 160 hours? Also find the probability that such a battery will last between 640 and 690 hours.

b) The p.d.f. of r.v. X is $f(X) = 12\ (x^2 - x^3);\ \ 0 < X < 1$
$= 0$; otherwise
Find mean and variance of X.

c) In one day's, production of 400 articles only 50 are of top quality, can we assume that 20% of manufactured products are of top quality. Use 5% level of significance.

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

a) Define level of significance and Write test procedure for testing equality of two population means.

b) If X is a r.v. with pdf

$$f(x) = \frac{1}{2\sqrt{2\pi}} e^{-\frac{(x-6)^{\wedge}2}{8}};\ -\infty < x < \infty$$

Find

i) μ and σ
ii) $E(3X-2)$
iii) $V(5X)$
iv) $V(2X+5)$

SLR-DD-41

Seat No.	

Set P

B.Sc. (E.C.S.) (Semester - III) (Old) (CBCS) Examination: Oct/Nov-2023
Introduction to Python Programming (ECS0307)

Day & Date: Tuesday, 19-12-2023 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 question. **08**

1) What is the name of Python's built-in module for regular expressions?
   a) regex b) regexes
   c) REG d) re

2) What is the data type used to store values in key values pair?
   a) List b) Dictionary
   c) Tuple d) Set

3) What will be the output after the following statements?

```
x = [5, 4, 3, 2]
x.remove(2)
print(x)
```

   a) [5, 3, 2] b) [5, 4, 2]
   c) [5, 4, 3] d) [3, 2]

4) What is the name of Python's built-in module for Python keywords?
   a) string b) keyword
   c) stringtest d) keytest

5) To open a file c:\scores.txt for reading, we use _____.
   a) infile = open("c:\scores.txt", "r")
   b) infile = open("c:\\scores.txt", "r")
   c) infile = open(file = "c:\scores.txt", "r")
   d) infile = open(file = "c:\\scores.txt", "r")

6) What will be the output after the following statements?

```
x = 'Python Pi Py'
print(x.find('p'))
```

   a) -1 b) 0
   c) 1 d) 3

7) What will be the output for a function that does not return any value?
   a) None b) No value
   c) Zero d) Bool

8) Which of the following is used to enclose strings?
   a) Single quotes
   b) Double quotes
   c) Either single quotes or double quotes
   d) ! symbol

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

1) What is class variable and instance variable?
2) What is File? List Different modes of file.
3) What is use of super () method?
4) What is module?
5) What is use of break and continue?
6) What is variable? Differentiate Local & Global variable.

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

1) Explain Looping statement with example.
2) What is String? Explain any 4 methods of String with example.
3) Write a program to check given number is Armstrong or not.

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

1) What is exception? Explain at least 4 Built-in Exception with example.
2) What is function? Write a program to confirm entered no. is odd/even using function.
3) Explain all numeric data types used in python.

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

1) Explain Abstract classes & Interfaces with Example.
2) Explain different type conversion technique used in python.

SLR-DD-42

Seat No.	

Set P

B.Sc. (E.C.S.) (Semester - IV) (New) (CBCS) Examination: Oct/Nov-2023
Database Management System (ECS0401)

Day & Date: Wednesday, 13-12-2023 Max. Marks: 40
Time: 12:00 PM To 02:00 PM

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

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

1) Which of the following is generally used for performing tasks like creating the structure of the relations, deleting relation?
   a) DML b) Query
   c) Relational Schema d) DDL

2) What do you mean by one to many relationships?
   a) One class may have many teachers
   b) One teacher can have many classes
   c) Many classes may have many teachers
   d) Many teachers may have many classes

3) Which one of the following commands is used to restore the database to the last committed state?
   a) Savepoint b) Rollback
   c) Commit d) Both A & B

4) Which one of the following commands is used to modify a column inside a table?
   a) Drop b) Update
   c) Alter d) Set

5) Which one of the following given statements possibly contains the error?
   a) select * from emp where empid = 10003;
   b) select empid from emp where empid = 10006;
   c) select empid from emp;
   d) select empid where empid = 1009 and Lastname = 'GELLER';

6) The term “Data independence” refers to _____.
   a) Data is defined separately and not included in the programs
   b) Programs are not dependent on the logical attributes of the data
   c) Programs are not dependent on the physical attributes of the data
   d) Both B & C

7) In which one of the following, the multiple lower entities are grouped (or combined) together to form a single higher-level entity?
   a) Specialization b) Generalization
   c) Aggregation d) None of the above

8) In the relational table, which of the following can also be represented by the term “attribute”?
   a) Entity b) Row
   c) Column d) Both B & C

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

a) What are the advantages of DBMS?
b) Define Aggregation. Explain with example.
c) Discuss the properties of transaction.
d) What is check point?
e) What is shared lock?
f) What is Shadow paging?

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

a) What is DBMS Architecture? Explain Types of DBMS Architecture.
b) What is scheduling? Explain view serializability with example.
c) Describe in detail Timestamp Ordering Protocol.

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

a) Explain ACID Properties in DBMS.
b) Explain Generalization and specialization with suitable example.
c) Explain three schema Architecture.

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

a) What is deadlock? How it is detected in DBMS? Explain with example.
b) What is ER-model? Explain its notations in detail with example.

SLR-DD-43

Seat No.		Set	P

B.Sc. (E.C.S.) (Semester-IV) (New) (CBCS) Examination: Oct/Nov-2023
MYSQL (ECS0402)

Day & Date: Thursday, 14-12-2023 Max. Marks: 40
Time: 12:00 PM To 02:00 PM

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

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

1) Find the error?

```
CREATE TABLE person (
  person_id SMALLINT,
  lastname VARCHAR,
  FIRSTNAME VARCHAR,
  birth_date DATE
  CONSTRAINTS pk_person PRIMARY KEY (person_id)
);
INSERT INTO
personne( person_id, lastname, FIRSTNAME, Birth_date )
VALUES(1,'a','b', 09-1994-02);
```

a) Error in data values b) No Error
c) Other error d) Error in Syntax

2) The "father" of MySQL is _____.
a) Michael Widenius b) Stephanie Wall
c) Bill Joy d) Ron Soukup

3) MySQL _____ Clause is used with SELECT, INSERT, UPDATE and DELETE clause to filter the results.
a) Distinct b) ORDER BY
c) WHERE d) FROM

4) _____ command makes the updates performed by the transaction permanent in the database?
a) ROLLBACK b) COMMIT
c) TRUNCATE d) DELETE

5) Group of operations that form a single logical unit of work is known as _____.
a) View b) Network
c) Unit d) Transaction

6) Find the error?

```
CREATE TABLE person (
  person_id SMALLINT,
  lastname VARCHAR,
  FIRSTNAME VARCHAR,
  birth_date DATE
  CONSTRAINTS pk_person PRIMARY KEY (person_id)
);
INSERT INTO
Person (person_id, lastname, FIRSTNAME)
VALUES(1, 'a', 'b');
INSERT INTO
person( person_id, lastname, FIRSTNAME)
VALUES(1,'c','d');
```

a) No Error
b) Error, duplicate value
c) Other error
d) Error in Syntax

7) The maximum length of a column of type "char" is _____?

a) 255 bytes
b) 65, 535 bytes
c) 256 bytes
d) None of the above

8) MySQL is a(n) _____ database management system?

a) Object oriented
b) Hierarchical
c) Relational
d) Network

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

a) What are Data & Database?
b) Explain Types of MySQL Constraints.
c) How to Create Index in MySQL?
d) How to change the table name in MySQL?
e) How to execute a stored procedure in MySQL?
f) How MySQL Works?

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

a) Explain Data types in MySQL.
b) Explain Count (), Sum() & AVG() Aggregate Functions with example.
c) Explain Primary key, Foreign key with example.

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

a) What is Cursor? Explain types of cursor with example.
b) Explain MySQL clause order by, group by, rollup with example.
c) Explain History of MySQL in detail.

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

a) Explain INSERT, UPDATE, SELECT, DELETE with example.
b) Explain three types of MySQL joins with example.

SLR-DD-44

Seat No.	

Set P

B.Sc. (E.C.S.) (Semester - IV) (New) (CBCS) Examination: Oct/Nov-2023
Operating System (ECS0403)

Day & Date: Friday, 15-12-2023 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) Virtual memory can be implemented with _____.
a) Segmentation b) Paging
c) Both a and b d) None of the above

2) _____ is a technique of temporarily removing inactive programs from the memory of computer system.
a) Swapping b) Spooling
c) Semaphore d) Scheduler

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

4) 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.

5) The FIFO algorithm _____.
a) Executes first the job that last entered the queue
b) Executes first the job that first entered the queue
c) Execute first the job that has been in the queue the longest
d) Executes first the job with the least processor needs

6) The degree of Multiprogramming is controlled by _____.
a) CPU Scheduler b) Context Switching
c) Long-term Scheduler d) Medium term Scheduler

7) 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

8) The banker's algorithm is used for deadlock _____.
a) Prevention b) Avoidance
c) Detection d) Recovery

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

a) What are the three main purposes of an operating system?
b) Define Multiprogramming operating System.
c) Define disk scheduling.
d) What is mean by Process Synchronization?
e) Define Paging.
f) Define the term File.

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

a) Reader-Writer Problem in Process Synchronization
b) FCFS Scheduling algorithms
c) Segmentation

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

a) What is Scheduling? Explain types of Schedulers.
b) Explain process state with diagram.
c) Explain different File type in storage management.

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

a) Define Operating system. Explain the different services provided by Operating System.
b) What is page replacement? Write the working of FIFO page replacement algorithm.

SLR-DD-45

Seat No.		Set	P

B.Sc. (E.C.S.) (Semester - IV) (New) (CBCS) Examination: Oct/Nov-2023
Linux OS and Shell Scripting (ECS0404)

Day & Date: Saturday, 16-12-2023 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 command interpreter is also called the _____.
a) Prompt b) Kernel
c) Shell d) Command

2) The command to change the owner of a file is _____.
a) chgrp b) chown
c) chmod d) set

3) The 'PATH' variable is used to _____.
a) find text files b) find executable files
c) find data files d) specify users login directory

4) What command is used to count just the number of characters in a file?
a) wc - r b) wc - w
c) wc - c d) wc - l

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

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

7) What command is used to display the characteristics of a process?
a) au b) ps
c) du d) pid

8) Special files are also known as _____.
a) Character special files b) Block special files
c) Device files d) Data files

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

a) What is mean by Pipe?
b) Define the Boot block?
c) What is mean by Filters?
d) Write Syntex of lpr and lpq Command?
e) What is mean by Data Block?
f) What is grep command?

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

a) Write note on mkdir and rmdir command
b) Role of system administrator
c) Inode Block

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

a) What is Shell? Explain types of Shell.

b) What is Vi editor? Explain the modes in Vi editor.

c) Explain I/O and Redirection in Shell programming.

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

a) Explain Communication command syntax with example.

b) Explain the Architecture and features of Linux operating system.

SLR-DD-46

Seat No.	

Set P

B.Sc. (E.C.S.) (Semester - IV) (New) (CBCS) Examination: Oct/Nov-2023
Statistics for Data Science (ECS0405)

Day & Date: Sunday, 17-12-2023 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 and give equations wherever necessary.
4) Use of logarithmic table and any type of calculator is allowed.
(At. Wts.: H=1, C=12, O=16, N=14, Na=23, Cl=35.5)

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

1) From histogram we can obtain _____.
   a) Mean b) Median
   c) Mode d) All of these measures

2) The equations of lines of regression are $3X + Y = 50\ and\ X + 2Y = 50$, then means of $(X, Y) =$ _____.
   a) (10, 20) b) (20, 10)
   c) (9, 23) d) None of these

3) To test blood, one can use _____ sampling method.
   a) SRSWR b) SRSWOR
   c) Stratified d) None of these

4) Classification is _____.
   a) Condense the data
   b) Simplifies complex of nature of data
   c) Helps in drafting the report
   d) All of these

5) To draw less than ogive l.c.f is plotted against _____ of corresponding classes.
   a) upper limit b) lower limit
   c) mid-point d) None of these

6) The range and coefficient of range of the values 11, 10, 13, 14, 12, 20, 18, 19 are _____.
   a) 10 and 2/3 b) 20 and 1/3
   c) 10 and 30 d) 10 and 1/3

7) The measure of dispersion that based on only extreme observations is _____.
   a) Range b) s.d.
   c) c.v. d) None of these

8) If the profits of a company remains the same for the last ten months, then the standard deviation of profits for these ten months would be _____.
   a) positive b) negative
   c) zero d) none of these

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

1) Define A.M. and state its merits and demerits.
2) If mean of X is 50 and C.V. is 45% then find variance and S.D.
3) State objectives of classification.
4) Define class frequency and class mark.
5) Define Simple random sampling method.
6) Find median for the observations 61,62,62,63,62,64,60,64,65.

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

1) Explain construction of histogram.
2) Given; $n = 10, \sum X = 35, \sum Y = 55, \sum X^2 = 165, \sum Y^2 = 375, \ \sum XY = 225$
Find correlation coefficient between X and Y.
3) Following is the information about the wages of workers in firm A and B.

Firm	No. of worker	Mean salary	S.D. of salary
A	400	5250	300
B	600	4750	200

Find which firm shows more variation in paying the wages?

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

1) Two samples of sizes 50 and 100 have means as 55 and 60 and variances as 16 and 25 resp.
Find the standard deviation of the combined sample of size 50.
2) Draw histogram from the following data and also find mode value.

Classes	20-29	30-39	40-49	50-59	60-69
Frequency	14	23	27	21	15

3) Short note on Scatter Diagram.

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

a) State any four properties of Regression coefficients and correlation coefficient. and find
   1) the regression line of X on Y and estimate X if Y = 45
   2) the regression line of Y on X and estimate Y if X= 50

X	40	34	28	30	44	38	31
Y	32	39	26	30	38	34	28

b) The median and mode of the following distribution are known to be 27 and 26 respectively Find missing frequencies.

Classes	0-10	10-20	20-30	30-40	40-50
Frequency	3	-	20	12	-

SLR-DD-47

Seat No.	

Set P

B.Sc. (E.C.S.) (Semester - IV) (New) (CBCS) Examination: Oct/Nov-2023
Optimization Techniques (ECS0406)

Day & Date: Monday, 18-12-2023 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) If i^{th} primal constraints in an equality then j^{th} dual variable will be _____ in sign.
a) unrestricted b) equal
c) $\geq$ d) $\leq$

2) For maximization of LPP, the simplex method is terminated when all values _____.
a) $c_j - z_j \leq 0$ b) $c_j - z_j \geq 0$
c) $c_j - z_j = 0$ d) $z_j \leq 0$

3) The graphical method of LPP uses _____.
a) Objective function equation b) Constraint equation
c) Linear equation d) All of above

4) If primal of LPP has 3 constraint and 4 variables then dual will have _____ variable and _____ constraints.
a) $(3,4)$ b) $(4,3)$
c) $(4,4)$ d) $(3,3)$

5) When the number of occupied cells in any solution of T.P. is less than $m+n-1$ then solution is _____.
a) Non degenerate b) Degenerate
c) Feasible d) Optimum

6) In the T.P. which of the following is a capacity constraint _____.
a) $\sum_{j=1}^{n} x_{ij} = a_i\,, i = 1,2,\ldots m$ b) $\sum_{i=1}^{m} x_{ij} = a_i, i = 1,2,\ldots m$
c) $\sum_{j=1}^{m} x_{ij} = b_j, j = 1,2,\ldots n$ d) $\sum_{j=1}^{n} x_{ij} = b_j, j = 1,2,\ldots n$

7) What is full form of MODI?
a) Modified Deduction Method b) Modified Distribution Method
c) Multiple Distribution Method d) None of these

8) For solving A.P. which method is used?
a) Hungarian b) Gauss
c) VAM d) MODI

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

a) Define slack and surplus variable.

b) What are advantages of LPP.

c) Explain VAM to find IBFS of T.P.

d) Define unbalanced A.P.

e) Convert LPP in to standard form

$\text{Max } z = 3x + 4y$ s.t.c.

$3x + 2y \leq 6$

$2x + y \leq 1$

$x, y \geq 0$

f) Write general mathematical model of T.P.

Q.3 Write note on any two. **08**

a) Explain NWCM of solving T.P.

b) Define Canonical form of LPP. Give any example.

c) Write a note on unbalanced T.P.

Q.4 Attempt any two of following. **08**

a) Obtain an IBFS to the following T.P using VAM.

Origin	Destination				Supply
	1	2	3	4	
1	20	22	17	4	120
2	24	37	9	7	70
3	32	37	20	15	50
Demand	60	40	30	110	240

b) Solve following LPP by using graphical method.

$\text{Min } z = 4x + 2y$

subject to constraint

$4x + y \geq 20$

$2x + y \geq 14$

$x + 6y \geq 18$

$x, y \geq 0$

c) Find Solution of given LPP by using simplex method.

$\text{Max } z = 7x_1 + 5x_2$

subject to constraint

$x_1 + 2x_2 \leq 6$

$4x_1 + 3x_2 \leq 12$

$x_1, x_2 \geq 0$

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

a) Describe mathematical model of T.P. and formulate it as an LPP.

b) Solve following assignment problem to get maximum profit.

J/M	A	B	C	D
1	35	27	28	37
2	28	34	29	40
3	35	24	32	28
4	24	32	25	28

SLR-DD-48

Seat No.	

Set P

B.Sc. (E.C.S.) (Semester - IV) (New) (CBCS) Examination: Oct/Nov-2023
Web Development Using PHP (ECS0407)

Day & Date: Tuesday, 19-12-2023 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 question. **08**

1) Which of the following function converts a string to all uppercase?
   a) upper() b) strtoupper()
   c) uppercase() d) struppercase()

2) Which of the following is the correct way to open the file "sample.txt" as readable?
   a) fopen("sample.txt", "r"); b) fopen("sample.txt", "r+");
   c) fopen("sample.txt", "read"); d) fopen("sample.txt");

3) Which of the following is the correct way to create a function in PHP?
   a) Create myFunction() b) New_function myFunction()
   c) function myFunction() d) None of the above

4) Who is known as the father of PHP?
   a) Rusmus Leodrof b) Drek Kolkevi
   c) List Barely d) Rasmus Lerdrof

5) What will be the output of the following program?

```
<?php
$a = 15;
function show()
{
$a = 20;
echo "$a";
}
show();
echo "$a";
?>
```

   a) 2020 b) 1515
   c) 1520 d) 2015

6) Which of the following is the correct way to print "Hello World" in PHP?
   a) write "Hello World"; b) write("Hello World");
   c) echo "Hello World"; d) echo (Hello World);

7) Which of the following is the correct way to create an array in PHP?
   a) $season = array ["summer", "winter" , "spring", "autumn"];
   b) $season = array("summer", "winter", "spring", "autumn");
   c) $season = "summer", "winter", "spring", "autumn";
   d) All of the above

8) PHP stands for _____.
   a) Hypenext Preprocessor
   b) Pretext Hypertext Preprocessor
   c) Personal Home Processor
   d) Personal Hypertext Preprocessor

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

a) What is the array in PHP?
b) Explain Rules for declaring PHP variable.
c) Explain the difference b/w static and dynamic websites?
d) How many data types are there in PHP?
e) What is the difference between "echo" and "print" in PHP?
f) Explain some of the PHP string functions?

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

a) Why use PHP? Give the Benefits / Features of PHP.
b) Differences between Get and Post methods in PHP with example.
c) What is session? Explain starting Session, adding session, reading & removing session.

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

a) What is cookie? Explain creating, reading, removing cookies.
b) Explain Conditional Statements & Loops in PHP.
c) What is data validation? Explain client-side validations with example.

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

a) Explain Database Connectivity with MYSQL. Explain Alter, insert, Modify & retrieving data in a table.
b) What is File? Explain Working with Files & Directories.

SLR-DD-49

Seat No.	

Set P

B.Sc. (E.C.S) (Semester - V) (New) (CBCS) Examination: Oct/Nov-2023
ENGLISH
Business English (ECS0501)

Day & Date : Saturday, 02-12-2023 Max. Marks: 40
Time: 03:00 PM To 05:00 PM

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

Q.1 Rewrite the sentence by filling the blanks with the correct answer from the given options. 08

1) What occasion is being celebrated in the story 'The Gift of the Magi'?
a) Easter b) Christmas
c) New Year's d) Della's birthday

2) Who came to visit Phatik's mother?
a) Their grandfather b) Their uncle
c) Their aunt d) Cousin

3) The girl in the poem 'The Solitary Reaper' was _____.
a) reaping and singing b) cutting and bending
c) singing and dancing d) reaping and quarrelling

4) The Queen Gulnaar desires _____.
a) The King's attention b) more jewellary
c) a rival d) more clothes

5) The schoolmaster lives in _____.
a) cottage b) bunglow
c) mansion d) apartment

6) The 'road' in the poem of Robert Frost is the symbol of _____.
a) the difficulties of life b) the fun in life
c) the attractive aspects in life d) the choice in life

7) He has sold his car. (change the voice of this sentence)
a) His car had been sold by him b) His car has been sold by him
c) His car have being sold by him d) His car having been sold by him

8) Don't lose hope. Keep _____ and you will surely succeed. (Fill in the blanks with choosing correct phrasal verb of the following alternatives)
a) going b) going on
c) going with d) going at

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

1) Who are the Magi? Why are Della and Jim called Magi?
2) Why did Phatik suffocated in the big city?
3) Describe the use of nature and harmony in the poem 'The Solitary Reaper.'
4) Why is the Queen Gulnaar unsatisfied and seeks a rival?
5) Describe the character of the village schoolmaster.
6) What is the significance of the two roads in the poem?

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

1) What is the importance of 21st Century skill?

OR

2) Explain the types of 21st Century skill.

Q.4 Write down long answer of the following question **10**

What are the most important learning skills of 21st century?

SLR-DD-50

Seat No.	

Set P

B.Sc. (E.C.S.) (Semester - V) (New) (CBCS) Examination: Oct/Nov-2023
Data Communication and Networking (ECS0502)

Day & Date: Sunday, 03-12-2023 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) Multiple choice questions. **10**

1) The elements of data communication are _____.
   a) Sender b) Receiver
   c) Transmission medium d) All of the above

2) _____ is the process of dividing a link, the physical medium, into logical channels for better efficiency.
   a) Multiplexing b) Switching
   c) Protocol d) Modulation

3) _____ is a set of rules that governs data communication.
   a) Message b) Sender
   c) Receiver d) Protocol

4) The effectiveness of data communication can be checked by _____.
   a) Accuracy b) Delivery
   c) Timeliness d) All of the above

5) _____ model is a model for understanding and designing network architecture.
   a) TCP/IP b) Open system interconnection
   c) Network Model d) None of these

6) _____ is a set of procedures used to restrict the amount of data the sender can sent before waiting for an acknowledgement.
   a) Flow control b) Error Control
   c) Access Control d) None of these

7) _____ is a number of packets passing through the network in a unit of time
   a) Switching b) Modulation
   c) Throughput d) Multiplexing

8) How many layers does OSI Reference Model has?
   a) 4 b) 5
   c) 6 d) 7

9) DNS is the abbreviation of _____.
   a) Dynamic Name System b) Dynamic Network System
   c) Domain Name System d) Domain Network Service

10) What is the use of Bridge in Network?
   a) To connect LANs b) To separate LANs
   c) To control Network Speed d) All of the above

b) Fill in the blank. **06**

1) _____ layer of OSI model also called end-to-end layer.
2) _____ is a device that forwards packets between networks by processing the routing information included in the packet.
3) URL stands for _____.
4) _____ topology requires multipoint connection
5) Most packet switches use _____ principle.
6) The _____ layer is the layer closest to the transmission medium.

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

a) Define the term data communication?
b) What is mean by protocol? Give any two examples
c) Define the term Analog and Digital Signal.
d) Define the term Signals.
e) What is mean by Framing?
f) What is mean by Error Control?
g) What is Transmission Media?
h) What is mean by Network Devices?
i) Define the term Topology?
j) Define the term Modulation?

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

1) Explain the Connection oriented and connection less services in data Communication.
2) Define Multiplexing Techniques? Explain FDM in Data Communication?
3) Explain Bridges and Router in Back -Bone Networks?

B) Write Short note on. **06**

1) Message Switching
2) Internet Control Protocols

Q.4 a) Attempt the following (Any Two) **08**

1) Explain Different types of Topologies.
2) Explain Amplitude Modulation in Modulation?
3) Explain Coaxial Cable transmission media?

b) Explain the TCP/IP reference model with neat diagram. **08**

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

a) Define the term Switching? Explain Circuit Switching and Message Switching?
b) Explain ISO-OSI Reference Model in computer network?
c) What is mean by Routing? Explain Distance Vector Routing Algorithm in detail?

SLR-DD-51

Seat No.		Set	P

B.Sc. (E.C.S) (Semester - V) (New) (CBCS) Examination: Oct/Nov-2023
Theory of Computer Science (ECS0503)

Day & Date: Monday, 04-12-2023 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) Multiple choice questions. **10**

1) A _____ is a finite, non-empty set of symbols.
   a) Language b) String
   c) Alphabet d) None of these

2) The proper prefix of the string abc is _____.
   a) {ε,c,bc,abc} b) {ε,c,bc}
   c) {ε,a,ab,abc} d) {ε,a,ab}

3) The function which mapping one to one from input to state function is known as _____ function.
   a) Machine b) State
   c) both a and b d) None of these

4) Every NFA with s-moves has an equivalent _____.
   a) NFA without ε-moves b) DFA
   c) Both a and b d) None of these

5) Regular expression are _____.
   a) Type 0 language b) Type 1 language
   c) Type 2 language d) Type 3 language

6) A pumping lemma is used to provide a given language is _____.
   a) irregular b) context-sensitive
   c) restricted d) none of these

7) In GNF grammar is required in the form of _____.
   a) $A \rightarrow BC|a$ b) $A \rightarrow a\alpha$
   c) Both a and b d) None of these

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) In PDA one situation has more than one transition then it is known as _____.
   a) PDA b) DPDA
   c) NPDA d) Stack

10) The _____ machine has infinite tape two both sides.
a) TM b) PDA
c) DFA d) None of these

Q.1 B) Fill in the blank **06**

1) The language of PDA is _____.
2) The grammar in which right-hand side production contains at most one non-terminal is called _____ grammar.
3) The context-free language is not closed under _____.
4) In _____ machine, the transition is associated with the state.
5) If the rightmost and leftmost production is a single non-terminal then it is known as _____ production.
6) All possible subset of the set is known as _____.

Q.2 Answer the followings (Any Eight): **16**

a) Let $R = \{(a, b), (b, c), (c, a)\}$. Find R^+, R^*
b) State difference between Moore and Mealy Machine.
c) Find a CFG for each of the languages defined by the following regular expression.
1) $a.b^*$ 2) $a^*.b^*$
d) Give a pictorial representation of a PDA.
e) Explain the Turing Machine model.
f) Define CFG and CFL.
g) Give the application of R.E. and F.A.
h) Define
1) Alphabet 2) Language
i) Why do we require NFA with ∈-moves?
j) Give operations on set.

Q.3 A) Answer the followings (Any two): **10**

1) Find a deterministic acceptor equivalent to
$M = (\{q0, q1, q2\}, \{a, b\}, q0, \{q2\})$

Δ	a	b
q0	q0, q1	q2
q1	q0	q1
q2	-	q0, q1

2) Construct DFA to find out given number is divisible by 2.
3) Convert the following right linear grammar to equivalent left linear grammar.
$S \rightarrow 0A \mid 1B$
$A \rightarrow 0C \mid 1A \mid 0$
$B \rightarrow 1B \mid 1A \mid 0 \mid 1A \mid 1$
$C \rightarrow a$

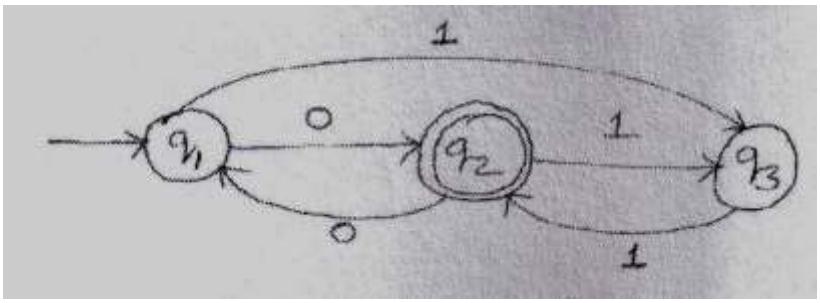
B) Construct F.A. equivalent to R.E. **06**
(a / b)* (aa + bb)* (a / b)*

Q.4 A) Answer the followings (Any two): **08**

1) Design a DFA which accepts a string that does not have abc as substring over $\sum = \{a, b, c\}$.

2) Check whether the following grammar is ambiguous or not; if ambiguity is found remove the ambiguity and rewrite an equivalent grammar.
$S \rightarrow iCtS \mid iCtSeS \mid a, C \rightarrow b$

3) Find out RE for the following DFA;



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) Construct TM for $L = \{a^n b^n c^n \mid n >= 1\}$

c) Design a PDA to check whether a given string over $\{a, b\}$ ends in abb.

SLR-DD-52

Seat No.	

Set P

B.Sc. (E.C.S.) (Semester - V) (New) (CBCS) Examination: Oct/Nov-2023
Visual Programming (ECS0504)

Day & Date: Tuesday, 05-12-2023 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 of the following converts a type to a string in C#?
   a) ToInt64 b) ToSbyte
   c) ToSingle d) ToString

2) Which statement is correct among the mentioned statements?
   1) The for loop works faster than a while loop
   2) for(; ;)implements an infinite loop
   a) Only 1 is correct b) Only 2 is correct
   c) Both are correct d) Both are incorrect

3) Which of the following statements is correct about constructors in C#.NET?
   a) A constructor cannot be declared as private
   b) A constructor cannot be overloaded
   c) A constructor can be a static constructor
   d) None of the mentioned

4) In Inheritance which of the following members of base class are accessible to derived class members?
   a) static b) protected
   c) private d) shared

5) Which of these keywords is not a part of exception handling?
   a) try b) finally
   c) thrown d) catch

6) A delegate defines _____.
   a) Wahsington representative
   b) class that encapsulates methods
   c) means of passing arrays into methods
   d) substitute for an inherited method

7) To fill a dataset for a report include _____ at the top of the file.
   a) Imports CrystalDecisions.CrystalReports
   b) CrystalDecisions.CrystalReports.Engine
   c) Exports CrystalDecisions.CrystalReports.Engine
   d) Imports CrystalDecisions. CrystalReports. Engine

8) How can you enhance the performance of crystal reports?
   a) Avoid using sub-reports as it hampers the performance
   b) Use report bursting indexes
   c) crystal_reports_hosting
   d) All of these

9) An Event has _____ as default return type.
   a) No return type for events b) String
   c) Double d) Integer

10) What is a satellite Assembly?
   a) A peripheral assembly designed to monitor permissions requests from an application.
   b) An assembly containing localized resources for another assembly.
   c) An assembly designed to alter the appearance or .skin. of an application.
   d) Any DLL file used by an EXE file.

B) Fill in the blanks. **06**

1) A _____ is an identifier assigned to memory location where data is stored.
2) _____ assemblies can be stored in Global Assembly Cache.
3) The Get and Set methods in the _____ property to get and set the text in the text box.
4) _____ objects are immutable.
5) The modifiers used to define an array of parameters or list of arguments is _____.
6) _____ is used to access members of class before the object of that class is created.

Q.2 Solve any Eight of the following. **16**

1) Explain Sealed Class.
2) Differentiate between value type and reference type.
3) Define Constructor.
4) Explain Enumerations.
5) Define Inherentance.
6) List different stream classes.
7) Explain ArrayList Collection.
8) Explain Multilevel inheritance.
9) Common type system
10) Directory classes

Q.3 A) Answer any Two of the following. **10**

1) What is delegate? Explain types of delegates.
2) Write a note on method overloading.
3) Explain Boxing Unboxing.

B) Write a program to implement multicast delegate. **06**

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

1) Explain the parameter passing techniques in detail.
2) Explain Indexer with example.
3) Explain FCL in detail.

B) Explain .Net framework with suitable block diagram in detail. **08**

Q.5 Answer any Two of the following. **16**

a) Write a program to handle custom exception.

b) What is operator overloading? Write a program to overload any two binary operators.

c) What is inheritance? Explain types of inheritance.

SLR-DD-53

Seat No.	

Set P

B.Sc. (E.C.S.) (Semester - V) (New) (CBCS) Examination: Oct/Nov-2023
Advanced Java (ECS0505)

Day & Date: Wednesday, 06-12-2023 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 Multiple choice questions. **10**

1) What is javax.servlet. Servlet?
   a) Interface b) abstract class
   c) concreate class d) None of the above

2) A servlet maintain session in _____.
   a) Servlet Context b) Servlet container
   c) Servlet response heap d) Servlet request heap

3) JSTL stands for _____.
   a) JavaServer Pages Standard Tag Library
   b) JSP Tag Library
   c) Java Standard Tag Library
   d) None of the above

4) Which of the following classes in Java contains swing version of an applet?
   a) JButton b) JCheckBox
   c) JApplet d) AbstractButton

5) In Java swing, which of the following components are represented by a rectangular area in which a component may be viewed?
   a) Scroll pane b) Tabbed pane
   c) Combo boxes d) None of these

6) How constructor can be used for a servlet?
   a) Initialization
   b) Constructor function
   c) Initialization and Constructor function
   d) Setup() method

7) Which of the following code is used to get an attribute in a HTTP Session object in servlets?
   a) session.getAttribute(String name)
   b) session.alterAttribute(String name)
   c) session.updateAttribute(String name)
   d) session.setAttribute(String name)

8) What is the name of the Swing class that is used for frames?
   a) Window b) Frame
   c) JFrame d) SwingFrame

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) Parameterized queries can be executed by?
   a) ParameterizedStatement
   b) PreparedStatement
   c) CallableStatement and Parameterized Statement
   d) All the Above

B) Fill in the blanks. **06**

1) _____ Method of DatagramPacket is used to find the port number.
2) JSP Stands for _____.
3) _____ action variable is used to include a file in JSP.
4) The Java _____ specification defines an application programming interface for Communication between the Web server and the application program.
5) _____ packages contains classes and interfaces for networking.
6) All collection classes are available in _____ package.

Q.2 Solve any Eight of the following. **16**

a) What is JDBC Statement?
b) Write two Uses of Drivers?
c) What is mean by JFrame and JComponent in Swing?
d) What is mean by classes and interfaces in java networking?
e) Define the term Servlet?
f) What are Multithreading in Servlets?
g) What is mean by Prepared Statements?
h) Define ResultSet Class in database?
i) What is mean by Session Object in JSP?
j) What is mean by Swing?

Q.3 A) Attempt any Two of the following. **10**

1) Explain TCP/IP Programming with example in java networking.
2) Write different Steps for Connecting to databases in JDBC.
3) Explain HTTP Request Model in Servlet?

B) Short note on: **06**

i) HTTP Request Methods.
ii) Basic JSP Lifecycle.

Q.4 A) Attempt any Two of the following. **08**

1) Explain Check Boxes and Radio buttons with example in swing?
2) Explain Different JSP Elements?
3) Explain Callable Statements with Example in database.

B) Explain Servlet Architecture with net labeled diagram. **08**

Q.5 Attempt any Two of the following. **16**

1) Explain Types of Drivers in database in detail.
2) Define JSP? Explain The Request Object and The Response Object with example in JSP?
3) Explain Handling HTTP Requests and Responses using GET and POST methods in Servlet?

SLR-DD-54

Seat No.	

Set P

B.Sc. (E.C.S.) (Semester - V) (New) (CBCS) Examination: Oct/Nov-2023
Advanced Python Programming (Special Paper - XI) (ECS0506)

Day & Date: Thursday, 07-12-2023 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) Which method of the socket module allows a server socket to accept requests from a client socket from another host?
   a) socket.accept() b) socket.sendto(address)
   c) socket.acceptsocket d) accept.socket()

2) What is the difference between the TCP and UDP protocols, and how do you implement them in Python with the socket module?
   a) TCP is compatible with Python, while UDP is not
   b) There are no differences
   c) TCP is not connection-oriented, while UDP is
   d) TCP is connection-oriented, while UDP is not

3) Which method of the socket module allows you to associate a host and a port with a specific socket?
   a) The socket.sendto(PORT) method
   b) The bind(IP,PORT) method
   c) The bind(PORT,IP) method
   d) The socket.accept(PORT) method

4) Which method is used to identify a thread?
   a) getName() b) get_ident()
   c) getThread() d) None of these

5) fg in tkinter widget is stands for?
   a) Foreground b) Background
   c) Forgap d) None of these

6) How we import a tkinter in python program?
   a) Import tkinter b) Import tkinter as t
   c) From tkinter import* d) All of the above

7) Which thread method is used to wait until it terminates?
   a) join() b) wait()
   c) waitforthread d) None of these

8) How pack() function works on tkinter widget?
   a) According to x,y coordinate
   b) According to row and column vise
   c) According to left,right,up,down
   d) None of the above

9) What is the standard way to import matplotlib's pyplot library in python?
   a) Import matplot as plt
   b) Import matplotlib.pyplot as plt
   c) From matplotlib import pyplot as plt
   d) Import matplotlib pyplot as plt

10) What is the method to retrieve the list of all active threads?
   a) getList() b) threads()
   c) enumerate() d) getThreads()

B) Fill in the blanks. **06**

1) TCP, FTP, Telnet, SMTP, POP etc are examples of _____.
2) Multithreading is also called as _____.
3) Tkinter tool in python provide the _____.
4) The client socket programming must know which information _____.
5) CGI stands for _____.
6) Which library is the most used visulization library in python _____

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

a) What are the benefits of using multithreading in Python?
b) What is Python Tkinter pack() method?
c) What is a socket?
d) What is MySQLdb?
e) What is Pandas in Python?
f) How to get the current date to display in a tkinter window?
g) Define Deadlock.
h) What is the purpose of DNS servers?
i) What is python tkinter?
j) Difference between a process and a thread?

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

1) Explain Tkinter Geometry methods.
2) Explain Server Socket Methods with example.
3) How does Python Connect to a database?

B) Short note on thread synchronization process. **06**

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

1) Explain different methods for thread class? With suitable example.
2) Explain DataFrame in Pandas? With example.
3) Write a program to create table with constraints in Mysql with python.

B) Explain Containers in GUI programming with suitable example. **08**

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

a) How create thread using threading module. With suitable example.
b) Explain Any four GUI widgets in Python.
c) Write a python program that sends email.

SLR-DD-55

Seat No.	

Set P

B.Sc. (E.C.S.) (Semester-VI) (New) (CBCS) Examination: Oct/Nov-2023
ENGLISH
Literary Mindscapes - I (ECS0601)

Day & Date: Monday, 20-11-2023 Max. Marks: 40
Time: 03:00 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) _____ are the names of the children in the story 'Growing up'.
   a) Joss and Kady b) Jane and Karli
   c) Jade and Katie d) Jenny and Kate

2) What was Aksionov fond of when he was younger?
   a) dancing b) sleeping
   c) singing d) reading

3) _____ children are listening to the story in the poem 'Sita'.
   a) One b) Two
   c) Three d) Four

4) What was the cause of the death of the duchess?
   a) illness b) accident
   c) drowning d) the duke

5) Complete the following line.
   'A thing of beauty is a _____ forever'.
   a) cheerful b) pleasant
   c) joy d) truth

6) Charlotte Bronte says that _____ possess the golden wings.
   a) Morning dew b) Hope
   c) Butterflies d) None of the above

7) Choose the correct adverb to fill in the bank
   I am _____ tired. I want to sleep for a couple of hours.
   a) extremely b) extreme
   c) insufficiently d) sufficient

8) My teacher often says to me "If you do not work hard, you will fail"
   The correct indirect speech of the above sentence is _____.
   a) My teacher often says to me that If I do not work hard, I will fail.
   b) My teacher told to me that if I do not work hard, I will fail
   c) My teacher said that if I does not work hard, I would fail.
   d) My teacher ordered that if I am not working hard, I would fail.

Q.2 Write short answers of the following questions. (Any Four) **12**

1) What do you know about Robert Quick's wife?
2) Why did Aksionov leave the inn early?
3) What is the tragic story told by the narrator in the poem 'Sita'?
4) Describe the personality of the duchess.
5) What objects of nature does John Keats mention as a source of joy?
6) What is the theme of the poem "Life"?

Q.3 Answer any one of the following. **10**

a) Explain the three most important literacy skills (IMT).

OR

b) Discuss in detail the life skills, known as (FLIPS).

Q.4 There is a spate of motor cycle robberies in your city. Give three steps that you would take as a civically literate person and as a leader. **10**

SLR-DD-56

Seat No.	

Set P

B.Sc. (E.C.S.) (Semester-VI) (New) (CBCS) Examination: Oct/Nov-2023
System Security (ECS0602)

Day & Date: Tuesday, 21-11-2023 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 of the following is not a principle of data security?
   a) Data Confidentiality b) Data Integrity
   c) Authentication d) None of the above

2) A mechanism used to encrypt and decrypt data _____.
   a) Cryptography b) Algorithm
   c) Data flow d) None of these

3) To encrypt the plaintext, a cryptographic algorithm works in combination with a key _____.
   a) Word, number, or phrase b) Special Symbols
   c) Function Keys d) All of these

4) Public key cryptography is a _____ cryptosystem.
   a) Symmetric
   b) Asymmetric
   c) Symmetric & Asymmetric both
   d) None of these

5) Which of the following are forms of malicious attack?
   a) Theft of information b) Modification of data
   c) Wiping of information d) All of the mentioned

6) Which of the following is the least secure method of authentication?
   a) Key card b) Fingerprint
   c) retina pattern d) Password

7) Which happens first authorization or authentication?
   a) Authorization
   b) Authentication
   c) Authorization & Authentication are same
   d) None of the mentioned

8) A password that is the same for each logon is called a: _____.
   a) Dynamic password b) Static password
   c) Passphrase d) One-time password

9) Which of the following malware do not replicate or reproduce through infection?
   a) Worms b) Trojans
   c) Viruses d) Rootkits

10) Which malware has Short for "robot network"?
   a) ronets b) botnets
   c) botwork d) rowork

B) Fill in the blank/Definition/One sentence answer/One word answer/ Give the name/ Predict the product etc. **06**

1) What is another type of Denial of server attack?
2) Malware is a short form of?
3) What is the RBAC System?
4) The process of verifying the identity of a user.
5) What is a computer called when it is infected with a malware bot?
6) Name the malicious software which keeps watch on your activities.

Q.2 Solve any Eight of the following. **16**

a) What is Spyware?
b) Explain about Digital Signature.
c) What is Discretionary Access Control?
d) Explain about Database Management Systems.
e) What is Buffer Overflow Attack?
f) What is phishing?
g) What is Inference in database security?
h) What are the types of malicious software?
i) What is Distributed Denial-of-Service Attack?
j) What are Rootkits?

Q.3 A) Attempt any Two of the following. **10**

1) Discuss security issues with Biometric Authentication Systems.
2) Explain Remote User Authentication.
3) Explain payloads - Keyloggers.

B) Short note/Solve **06**

Explain in detail about Reflector and Amplifier Attacks.

Q.4 A) Attempt any Two of the following. **08**

1) What are Malicious Software? Explain any four types in detail.
2) Explain Password-Based Authentication with suitable examples.
3) Explain Propagation of Viruses.

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

What are means of Authentication & Security issues for User Authentication.

Q.5 Attempt any Two of the following. **16**

a) What are payloads? Explain payloads Zombie, Bots, Keyloggers & Backdoors.
b) What is the importance of Database Security? Explain Database Encryption & Cloud Database Security.
c) What is Access Control? Explain about UNIX File Access Control.

SLR-DD-57

Seat No.	

Set P

B.Sc. (E.C.S.) (Semester - VI) (New) (CBCS) Examination: Oct/Nov-2023
Compiler Construction (ECS0603)

Day & Date: Wednesday, 22-11-2023 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.
4) Use of log table and calculators is allowed.

Q.1 A) Multiple choice questions. **10**

1) Which of the following parser is a top-down parser?
   a) An LALR parser
   b) A LR parser
   c) Operator precedence parser
   d) Recursive descent parser

2) Keywords are recognized in a compiler during _____.
   a) the code generation
   b) the data flow analysis
   c) the lexical analysis of the program
   d) the program parsing

3) Which compiler runs on one machine and generates code for multiple machines?
   a) Multipass compiler b) Cross compiler
   c) Optimizing compiler d) Onepass compiler

4) Which of the following is not a characteristic of the compiler?
   a) More execution time
   b) Debugging process is slow
   c) The execution takes place after the removal of all syntax errors
   d) Firstly, scans the entire program and then transforms it into machine-understandable code

5) Which grammar describes the lexical syntax?
   a) Lexical Grammar
   b) Context-free Grammar
   c) Syntactic Grammar
   d) Regular Grammar

6) The lexical analyzer is used for?
   a) removing comments
   b) removing whitespace
   c) breaking the syntaxes in the set of tokens
   d) All of the mentioned

7) In which derivation the right-most non-terminal symbol is replaced at each step?
   a) Right look ahead
   b) Right claim
   c) Rightmost
   d) Right non-terminal

8) The Keywords are recognized in a compiler during -
   a) the code generation
   b) the data flow analysis
   c) the lexical analysis of the program
   d) the program parsing

9) Which parser is known as the shift-reduce parser?
   a) Bottom-up parser
   b) Top-down parser
   c) Both Top-down and bottom-up
   d) None of the Above

10) Which optimization technique is used to reduce the multiple jumps?
   a) Latter optimization technique
   b) Peephole optimization technique
   c) Local optimization technique
   d) Code optimization technique

B) Fill in the blank. **06**

1) _____ is used in various stages or phases of the compiler.
2) Leaf nodes in a parse tree indicate _____?
3) _____ is highly used the grammar concept?
4) The output of the lexical analyzer is _____.
5) _____ phase of the compiler is also known as Scanner?
6) _____ is generated by the top-down parser.

Q.2 Solve any Eight of the following. **16**

a) Define S-attribute.
b) What is intermediate language?
c) Define lexical analyzer.
d) What is assignment statement?
e) What is role of parser?
f) What is multipass compiler?
g) Define syntax tree.
h) What is input buffering?
i) What is token?
j) Define finite automata.

Q.3 A) Attempt any Two of the following. **10**

1) Explain phases of compiler.
2) Build LL(1) parse table for following grammar and find out LL(1) or not:
$S \rightarrow AS$
$S \rightarrow a$
$A \rightarrow SA$
$A \rightarrow b$
3) Describe next use information with example.

B) Explain parameter passing with example. **06**

Q.4 A) Attempt any Two of the following. **08**

1) Describe peephole optimization with example.
2) What is case statement? Give the example of case statement.
3) What is activation tree? Give example of activation tree.

B) Describe recursive descent and predictive parsing in detail. **08**

Q.5 Attempt any Two of the following. **16**

a) Explain code generation from DAG.

b) Explain factors affecting on pass structure of compiler.

c) Build SLR(1) parse table for following grammar and find out LL(1) or not.

$S \rightarrow A$

$S \rightarrow B$

$A \rightarrow aA$

$A \rightarrow b$

$B \rightarrow dB$

$B \rightarrow b$

SLR-DD-58

Seat No.		Set	P

B.Sc. (E.C.S) (Semester - VI) (New) (CBCS) Examination: Oct/Nov-2023
Internet Programming Using ASP.Net (ECS0604)

Day & Date: Thursday, 23-11-2023 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.
4) Use of log table and calculators is allowed.

Q.1 A) Multiple choice questions. **10**

1) In ASP.NET the dll files are stored in _____ folder?
   a) Bin b) App_Data
   c) App_code d) App_LocalResourses

2) _____ Session Mode Serialization is not required to store the data.
   a) StateServer b) SQLServer
   c) InProc d) None

3) 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) ContentPlaceHolder control is required on a content page
   d) Both a) and b) option are correct.

4) The term for the pages that depend upon a master page is called _____.
   a) Web pages b) Content page
   c) Master page d) None of the above

5) _____ is the last event of web page life cycle.
   a) Page_Load b) Page_LoadComplete
   c) Page_Finish d) Page_Unload

6) How can we create a FileSystemObject in Asp.net?
   a) Create("FileSystemObject")
   b) Server.CreateObject("Scripting.FileSystemObject")
   c) Create Object:"Scripting.FileSystemObject
   d) Server.CreateObject("FileSystemObject")

7) Compare Validator control can be used for performing _____ task.
   a) To perform a data type check.
   b) To compare the value entered into a form field against a fixed value.
   c) To compare the value of one form field against another.
   d) All of the above

8) _____ attribute of checkboxes specifies on which side the text will be appears.
   a) Text align b) Align
   c) Textside d) None of these

9) If we want to add graphics using asp.net _____ web control will be used.
   a) Link Button b) Ad Rotator
   c) Grid View d) Layout

10) _____ of the following is server-side state management technique.
   a) Hidden filed b) Cache object
   c) Query string d) View state

B) True or false **06**

1) Server-side scripts are executed than client-side scripts are executed.
2) ASP.NET Web Forms is an event driven application model.
3) Web.config file is not used to store the global information and variable definitions for the application.
4) A web services takes the help of SOAP to tag the data, format the data.
5) Dataset enables to store data from multiple tables and multiple sources.
6) Session State helps to maintain user data to all over the application and can store any kind of object.

Q.2 Solve any Eight of the following. **16**

a) Cross page posting
b) Site Navigation
c) Nested Master pages
d) Update panel
e) Code render blocks
f) Cookies
g) Self-page posting
h) Script Manager
i) Page Directives
j) Content page

Q.3 A) Attempt any Two of the following. **10**

1) Explain event ordering of master pages.
2) Explain Tree View and Menu Control in detail.
3) Explain View State in ASP.Net in detail.

B) Explain validation controls in detail. **06**

Q.4 A) Attempt any Two of the following. **08**

1) Explain Client side State Management in detail.
2) Explain Processing Transactions in detail.
3) Explain Compilation Technique in ASP.Net.

B) Explain ASP.Net Page Structure in detail. **08**

Q.5 Attempt any Two of the following. **16**

a) Explain AJAX's Server side controls.
b) Explain SOAP, WSDL, and Proxy in web servers in detail.
c) Explain Rich Controls in detail.

SLR-DD-59

Seat No.	

Set P

B.Sc. (E.C.S.) (Semester - VI) (New) (CBCS) Examination: Oct/Nov-2023
Angular JS (ECS0605)

Day & Date: Friday, 24-11-2023 Max. Marks: 80
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) Use of log table and calculators is allowed.

Q.1 A) Multiple choice questions. **10**

1) Which one of the following is correct syntax for creating a module in angularjs?
   a) angular.module("app", []);
   b) var myModule= new Module();
   c) var myModule= angular.module();
   d) None of the above

2) AngularJS applications are a mix of _____.
   a) HTML & PHP b) HTML & JavaScript
   c) HTML & CrossScript d) All

3) Which community AngularJS belongs to _____.
   a) Google b) Microsoft
   c) Facebook d) Twitter

4) Which of the following is a valid angular js expression?
   a) { 2 + 2 } b) ((2 + 2))
   c) {{ 2 + 2 }} d) { (2 + 2) }

5) What is AngularJs?
   a) Library b) Framework
   c) Plugin d) Browser Extension

6) The _____ Directive in AngularJS is used to read the checked or unchecked state of the checkbox or radio button to true or false.
   a) ng-checked b) ng-change
   c) ng-click d) ng-form

7) The _____ directive tells AngularJS what to do when an HTML element loses focus.
   a) ng-focus b) ng-blur
   c) ng-include d) ng-pattern

8) _____ filter Formats Number as currency.
   a) Date b) number
   c) currency d) time

9) _____ is used as a link between view and controller.
   a) Module b) Scope
   c) CSS d) None of these

10) Which of the following types of variable is visible only within a function where it is defined?
a) Global variable b) local variable
c) Both of the above d) None of these

B) One word answer. **06**

1) What is a JavaScript file extension?
2) What is the abbreviation of DOM?
3) What is the use of getElementByld ().
4) Define NaN ().
5) What is the use of Filters?
6) What is the abbreviation of MVC?

Q.2 Solve any Eight of the following. **16**

a) List out ways to declare a JavaScript Variable.
b) List out components of dependency injection in AngularJs
c) What is validation?
d) How can we define directives in AngularJs?
e) What is Expression in AngularJs?
f) Define ng-repeat directive.
g) Define AngularJs Service.
h) Define Comments used in JavaScript?
i) List out control flow statements in JavaScript.
j) Define $watch in AngularJs.

Q.3 A) Attempt any Two of the following. **10**

1) What is the scope of variables in JavaScript?
2) Define ng-if directive in AngularJs.
3) Explain multiple controllers in AngularJs.

B) Write a short note on JavaScript try catch block with example **06**

Q.4 A) Attempt any Two of the following. **08**

1) What is a custom directive in AngularJs?
2) Explain Ajax Implementation using $http.
3) Write a JavaScript code to print Fibonacci series.

B) What is Filter in AngularJs? Explain with an example. **08**

Q.5 Attempt any Two of the following. **16**

a) Define AngularJs forms with an example.
b) Explain ng-show and ng-click directives with example.
c) Explain two way data binding.

SLR-DD-60

Seat No.		Set	P

B.Sc. (E.C.S) (Semester - VI) (New) (CBCS) Examination: Oct/Nov-2023

Mobile Application Development (Special Paper -XI) (ECS0606)

Day & Date: Saturday, 25-11-2023 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) All layout classes are the subclass of _____.
   a) android.view.ViewGroup b) Layout
   c) android.view.View d) none of these

2) _____ convert Java byte code in to Dalvik Bytecode.
   a) Dex compiler b) Toast
   c) Dalvik d) JVM

3) SQLite is an Open Source Database system embedded into every Android device
   a) false b) true

4) _____ is contained in src folder.
   a) Mainfest b) Java source code
   c) XML d) Dex compiler

5) _____ Component represents the single screen with the user interface.
   a) Activity b) Service
   c) Broadcast receiver d) content provider

6) In _____ Open Handset Alliance was announced.
   a) 2017 b) 2022
   c) 2007 d) 2008

7) _____ Virtual machine is used by android operation system.
   a) Dalvik b) JVM
   c) Simple d) Android

8) _____ element is used to display Google map in your
   a) Map b) View
   c) ViewMap d) None of these

9) In Linear layout by default orientation is _____.
   a) Horizontal b) Vertical
   c) not fixed d) None of these

10) Android is based on the Linux for the following reason _____.
a) security b) portability
c) networking d) all of these

B) Fill in the Blanks. **06**

1) The Top most layer of android is _____.
2) The full form of URI is _____.
3) _____is the built in database in the Android.
4) _____permission is used to send SMS.
5) _____is the layout in which Android arranges its children into rows and columns.
6) The android OS is based on _____ Kernel.

Q.2 Answer the followings (Any Eight): **16**

a) What is Android emulator?
b) Write a note on CheckBox.
c) Write a note on EditText.
d) Write methods of SmsManager class.
e) Write use of String.xml?
f) Write Registration of activity in android MainFest.xml.
g) What is use of Geocoding?
h) Write name of permissions used to camera and send Email.
i) What is intent filter?
j) Use of image switcher view.

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

1) Write a note on Geocoding and reverse Geocoding.
2) Write a program for addition of two integers.
3) Write a List of android versions.

B) Explain directory Structure of Android application. **06**

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

1) Write the list of methods in Service.
2) What is View? Explain Text View.
3) Write a note on Value folder.

B) Explain Content provider. **08**

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

a) What are different Android Layout? Explain any one.
b) Write a program to demonstrate service component in android app(write service and activity class).
c) Explain activity Lifecycle.