SLR-SD-1

Seat No.	

Set P

B.C.A. (Semester - I) (CBCS) Examination Oct/Nov-2017
Fundamentals of Computer

Day & Date: Thursday, 09-11-2017 Max. Marks: 70
Time: 10.30 AM to 01.00 PM

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

Q.1 Choose the correct alternatives: **14**

1) _____ is the term, which refers to all physical that the computer.
   a) Hardware b) Software
   c) Data d) Information

2) The third generation computer was characterized by using _____.
   a) IC b) VLSI
   c) Transistors d) Vacuum tube

3) 1 GB means _____.
   a) 1024 bytes b) 1024 MB
   c) 1024 GB d) 1025 MB

4) 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.

5) _____ is a scanning device.
   a) MICR b) Trackball
   c) Touch screen d) Mouse

6) The secondary memory of computer is _____
   a) Volatile b) Non-Volatile
   c) Temporary d) None of these

7) Monitor is most popular output device for producing _____ output.
   a) Hard Copy b) Soft Copy
   c) Print Copy d) All of these.

8) Operating System act as an _____ between user and Hardware.
   a) Interchange b) Operation
   c) Interface d) None of these

9) The execution of two or more program by a single CPU is known as ____.
   a) Multiprocessing b) Multiprogramming
   c) Time Sharing d) Real Time

10) All computer are connected to each other by using a dedicated disk is called _____ topology.
   a) Star b) Mesh
   c) Ring d) Bus

11) Dot matrix printer is _____ type of printer
   a) Impact b) Non-Impact
   c) Pointing d) None of these

12) _____command is used to open the file in DOS.
   a) Open b) Type
   c) Start d) New

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

14) The modifier keys on PC keyboard are _____.
   a) Enter, Space, Insert b) Shift, Ctrl, Alt
   c) Esc, Backspace, Alt d) None of these

Q.2 Solve any seven from the following **14**

a) VLSI stands for.
b) State any two internal and external DOS command.
c) Define software
d) EEPROM stands for.
e) Write advantage of assembly language.
f) Define protocol.
g) Define Virus.
h) Write function of operating system.

Q.3 A) Attempt any two of the followings: **10**

1) Explain term computer. Explain characteristics of computer and limitation of computer.
2) Explain Compiler and Interpreter in detail.
3) What is internet? Explain use and benefits of internet.

B) Explain security in detail. **04**

Q.4 Attempt any two of the followings: **14**

a) How to protect computer from virus? Explain in detail.
b) List to different output device and Explain Laser printer in detail.
c) Explain different types of operating system.

Q.5 Attempt any two of the followings: **14**

a) Explain different types of Networks in detail.
b) Solve the followings (any three)
1) $(101011.110)_8 = (?)_{10}$
2) $(1B.2D)_{16} = (?)_{10}$
3) $(128.36)_{10} = (?)_2$
4) $(11.10)_{10} = (?)_{16}$

c) What is computer language? Explain high level language.

SLR-SD-2

Seat No.	

Set P

B.C.A. (Semester - I) (CBCS) Examination Oct/Nov-2017
BASICS OF 'C' PROGRAMMING

Day & Date: Saturday, 11-11-2017 Max. Marks: 70
Time: 10.30 AM to 01.00 PM

Instructions: All Questions are compulsory.

Q.1 A) Choose correct alternatives. **07**

1) The default storage class of formal parameter in function is _____
   a) auto b) extern
   c) static d) register

2) _____ Statement causes loop termination.
   a) if b) continue
   c) break d) switch

3) The statement 5 << 3 in 'C' language results_____
   a) 15 b) 125
   c) 40 d) 8

4) After compilation of "one.c" program _____ file is created.
   a) one.c b) one.cpp
   c) one.exe d) one.obj

5) _____ is invalid identifier in 'C' language.
   a) Student b) roll_number
   c) If d) All of these

6) Identify the output of following 'C' code:

```
#define   p   5+3
#define   q   4-2
void  main()
{
        printf("%d",(p*q));
 }
```

   a) 16 b) 15
   c) 26 d) 25

7) _____ format code is used with double data type.
   a) %d b) %c
   c) %1f d) %s

Q.1 B) State whether True or False **04**

1) Parameters used at function call are called formal parameters.
2) Execution of 'C' program ends from getch() function.
3) Switch is two-way decision making statement.
4) 'C' language is portable language.

Q.1 C) Fill in the blanks. **03**

1) _____ operator returns memory address of operand.
2) _____ is default value for local variable.
3) One dimensional array is also called as _____.

Q.2 Attempt any seven of the followings: **14**

a) What is algorithm?
b) Write use of size of operator.
c) What is loop?
d) What is variable?
e) List out rules to declare identifier.
f) Define the term ‘recursion’
g) Explain use of single line and multi-line comment.
h) Write syntax and example of ternary operator.
i) Explain any two inbuilt mathematical functions.

Q.3 A) Attempt any two of the followings: **10**

1) Write a program that finds addition of all elements of matrix having order 3 by 4
2) What is storage class? Explain ‘extern’ and ‘static’ storage classes with example.
3) Write a program that check entered number is Prime or not using function.

B) Write a short note on type casting. **04**

Q.4 Attempt any two of the followings: **14**

a) What is Algorithm? List out its characteristics. And write an algorithm to check entered number is palindrome or not.
b) Explain ‘if’ statement with its different types.
c) Write a program that prints following pattern: (Use ‘for’ loop)

```
9 8 7 6 5 4
9 8 7 6 5
9 8 7 6
9 8 7
9 8
9
```

Q.5 Attempt any two of the followings: **14**

a) Write a program that prints all Armstrong numbers between range 1 to 1000.
b) What is array? Explain all types of array in details.
c) Write a program to print Fibonacci series up to ‘n’ numbers using recursion.

SLR-SD-3

Seat No.	

Set P

B.C.A. (Semester - I) (CBCS) Examination Oct/Nov-2017
FINANCIAL ACCOUNTING WITH TALLY

Day & Date: Tuesday, 14-11-2017 Max. Marks: 70
Time: 10.30 AM to 01.00 PM

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

Q.1 Select correct alternatives and rewrite statement. **14**

1) All indirect expenses are debited to _____ Account.
   a) Trading b) Capital
   c) Profit and Loss d) Current

2) A _____ is an intangible
   a) Goodwill b) Stock
   c) Building d) Cash

3) _____ is the list of all ledger balances?
   a) Balance sheet b) Trial balance
   c) Trading Account d) Profit and Loss

4) Wages paid for installation of machinery should be debited to _____ Account.
   a) Machinery b) Wages
   c) Trading d) Profit and Loss

5) Prepaid expenses are shown on the _____side of the balance sheet
   a) Assets b) Liability
   c) Debit d) Credit

6) Trading account is prepaid on the basis of _____ Expenses.
   a) Indirect b) Direct
   c) Revenue d) Other

7) Income and Expenditure account is a _____.
   a) Capital account b) Real account
   c) Personal account d) Nominal account

8) The shortcut key used to activate calculate is
   a) Ctrl + N b) Ctrl + M
   c) Ctrl + A d) Ctrl + B

9) Which voucher type is used to transfer amount from one bank to another
   a) Payment b) Receipt
   c) Contra d) Post-Dated

10) The shortcut key to quit from tally is
   a) Ctrl + L b) Ctrl + p
   c) Ctrl + M d) Ctrl + Q

11) Which shortcut key is pressed for voucher entry or deleting a ledger?
   a) Alt + A b) Alt + C
   c) Alt + X d) Alt + D

12) Which shortcut key used to view configure in tally?
   a) F10 b) F11
   c) F12 d) Alt + F9

13) _____ is the invalid voucher type in tally?
   a) Journal b) Receipt
   c) Payment d) Invoice

14) The activate gateway of Tally _____ shortcut key is used
   a) Ctrl + M b) Ctrl + P
   c) Ctrl + O d) Ctrl + g

Q.2 Solve any seven from the following **14**

a) Define Voucher.
b) What is meant by Account?
c) What is meant by Drawings?
d) What is meant by Bad debts?
e) TDS stands for.
f) Define goodwill.
g) FIFO stands for.
h) Scenario Management.
i) MIS stands for.

Q.3 A) Attempt any two of the followings: **10**

1) What is book-keeping? Explain the objectives of book-keeping.
2) How to create new company in Tally.
3) Define Voucher. Explain types of vouchers in tally.

B) Write a short note on Scenario Management. **04**

Q.4 Answer any two of the followings: **14**

a) What is group of tally? Enlist the groups.
b) Define accounting and Explain concept of accounting.
c) XYZ limited purchase machinery of Rs.50000 on 01/04/2007, company decided to charge depreciation @10% per annum using original cost method (SLM) company close its book of account on 31st March every year. Shows Machinery Account for Three Year.

Q.5 Answer any two of the following. **14**

a) Exception Report.
b) Methods of pricing of issues of materials.
c) Journalize the following transaction in the books of Shri. Mahavir and Co. for the month of January 2016

1. Started business with cash Rs 12000, Furniture Rs 5000 and Building Rs 13000.
2. Goods of Rs 6000 purchased for cash.
3. Cash sales Rs 2700.
4. Goods of Rs 500 distributed as free sample.
5. Goods of Rs 10000 purchase from Miss. Palak.
6. Goods of Rs 5000 sold to Sujal of which Rs 3500 received immediately.
7. Paid Rs 550 as printing charges.
8. Paid Rs 2000 to Miss. Palak on her account.
9. Salary paid Rs.1500.

SLR-SD-4

Seat No.	

Set P

B.C.A. (Semester - I) (CBCS) Examination Oct/Nov-2017
COMMUNICATION SKILLS

Day & Date: Thursday, 16-11-2017 Max. Marks: 70
Time: 10.30 AM to 01.00 PM

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

Q.1 Choose the most correct alternative for the following and rewrite the sentence. **14**

1) The principle of _____ is used when 'you' attitude is used.
   a) Consideration b) Clarity
   c) Courtesy d) Correctness

2) The word 'communication; is derived from _____ language
   a) Sanskrit b) Greek
   c) Latin d) English

3) _____ is not device of oral communication.
   a) Telephone b) Meeting
   c) Lecture d) Letter

4) The Production Manager talks with the sales Manager is an example of _____communication.
   a) Upward b) Horizontal
   c) Grapevine d) Consensus

5) The minutes are written in _____ tense.
   a) Simple Future b) Simple Present
   c) Simple past d) None of the above

6) The processes of converting ideas in words are called _____.
   a) Feedback b) Decoding
   c) Encoding d) Messaging

7) One of the following is not applicable for the downward communication.
   a) Delay b) Loss of Information
   c) Distortion d) Quick and Fast

8) _____ may be used for issuing warring to an employee.
   a) Memorandum b) Minutes
   c) Reports d) Notice

9) A list of subjects to be transacted in the impending meeting is called _____.
   a) Notice b) Report
   c) Minutes d) Agenda

10) _____communication is a very fast and quick.
   a) Downward b) Upward
   c) Horizontal d) Grapevine

11) Conciseness means
   a) Brief
   b) Full length
   c) Big
   d) Broad

12) _____letters are used to introduce new products.
   a) Credit
   b) Inquiry
   c) Sales
   d) Collection

13) Pictures and graphs are the examples of _____communication.
   a) Verbal
   b) Non-verbal
   c) Audio
   d) Vocal

14) A memo is an example of _____.
   a) Internal communication
   b) External communication
   c) Lateral communication
   d) Informal communication

Q.2 Solve any seven from the following. **14**

a) Define communication.
b) Explain language as a barrier to communication.
c) What is brain-drain?
d) Give two usages of full stop.
e) What is an Agenda?
f) What is an enclosure in letter?
g) Explain the importance of identification marks?
h) What is the purpose of consensus communication?
i) What is feedback?

Q.3 A) Write notes on any two of the following. **10**

1) As secretary of the student's council of your college, write the notice and draft the agenda of the meeting of the council members to plan and discuss the conduct of the books exhibition.
2) What are non-verbal communication? And how they are useful for communication?
3) Explain how you can follow the principles of courtesy for effective communication.

B) Encoding and Decoding. **04**

Q.4 Attempt any two of the following. **14**

a) As the Assistant Manager draft a report to be submitted to the Managing Director about the unrest among the staff regarding the company's policies. Recommends the strategies to solve this problem.
b) Explain the process of communication with a neat diagram.
c) What are the modern forms of communication? Discuss the advantages and disadvantages of multi-medias.

Q.5 Attempt any two of the following **14**

a) Write an inquiry letter to computer hub about a various computers, models and their price, payments, discount and mode of delivery.
b) What are the types of communication? Discuss the merits and demerits of various types.
c) What is a barrier to communication? Illustrate a various barriers to communication and provide solutions to overcome.

SLR-SD-5

Seat No.	

Set P

B.C.A (Semester - I) (CBCS) Examination Oct/Nov-2017
DISCRETE MATHEMATICS

Day & Date: Saturday,18-11-2017 Max. Marks: 70
Time: 10.30 AM to 01.00 PM

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

Q.1 Choose the correct alternative. **14**

1) The converse of the statement ~p→ ~q is _____.
   a) p→q b) ~p→q
   c) ~p→q d) ~p→ ~q

2) A relation is said to be equivalence if _____.
   a) Reflexive b) Transitive
   c) Symmetric d) All of above

3) $|A \cup B| = |A| + |B| -$ _____.
   a) $|A \cap B|$ b) $|A \cup B|$
   c) $|A' \cup B|$ d) None of these

4) If $A = \{x/x$ is a prime no. from 1 to 20$\}$ then the cardinality of A is
   a) 8 b) 9
   c) 10 d) 20

5) Sets A & B are said to be disjoint if $A \cap B$ =_____.
   a) ⌀ b) 0
   c) 1 d) None of these

6) Which of the following is not a statement?
   a) $x + 4 = 5$ b) $sin^2\theta + cos^2\theta = 1$
   c) Mathematics is a difficult subject d) Mayuri is a beautiful girl

7) A Graph without any loop & parallel edges is called
   a) Simple Graph b) Multi Graph
   c) Pseudo Graph d) Null Graph

8) If A, B are the subset of universal set ∪ then $(A \cup B)'$ = _____.
   a) $A' \cup B'$ b) $A' \cap B'$
   c) $A \cup B$ d) $A \cap B$

9) If $n + 1$ object's are distributed into n boxes then at least one box contain's _____ object's.
   a) One b) More than one
   c) 0 d) At least one

10) A Graph G having parallel edges but not loop is called_____.
   a) Graph b) Multi Graph
   c) Pseudo Graph d) Null Graph

11) The cardinality of singleton set is_____.
   a) 1 b) 2
   c) 0 d) -2

12) A function is said to be Bijective if it is _____.
   a) One-one b) Onto
   c) Both a & b d) None of these

13) A compound statement which is Neither a tautology nor a contradiction is called_____.
   a) Tautology b) Contradiction
   c) Both d) Contingency

14) If a Graph G does not have any edge then the Graph is called_____.
   a) Null Graph b) Simple Graph
   c) Multi Graph d) None of the above

Q.2 Answers to the following. [Any seven] **14**

a) Determine the No. of integer between 1 to 300 which are not divisible by 3.

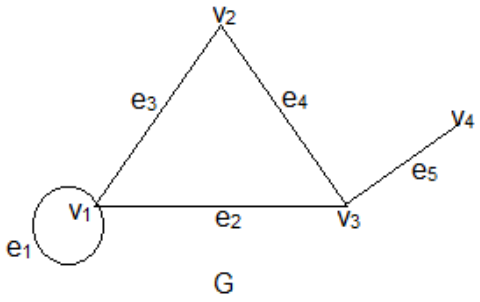
b) Prepare the truth table for $\sim p \Lambda \sim q$

c) If A = {1, 3, 4, 5 ,10} , B ={2, 4, 5, 8,10} then find A $\oplus$ B and A – B.

d) State the Inclusion – Exclusion principle for three set A, B and C

e) Find the value of 'a' if the function
F(x) = ax^2+x+2 and f(-2) = 8.

f) If G be a given Graph.

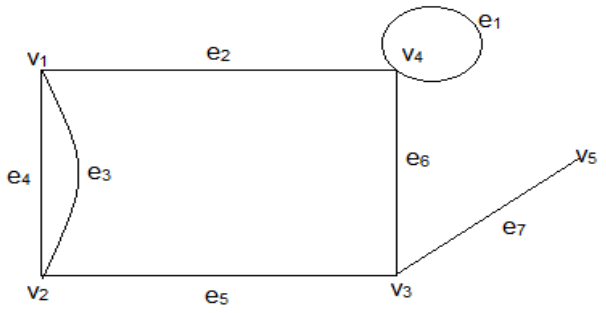


G

Then Find G –{e_2,e_4} and G - v_3

g) Define symmetric difference of two set.

h) Find Adjancency Matrix for the following Graph.



i) If A = {1, 2, 3, 4} and B = {a, b, c, d} then find A×B and B×A

Q.3 A) Attempt any two of the following. **10**

1) Test the validity of argument
$p \rightarrow q, q \rightarrow r, r \vdash p$

2) 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)}. Draw diagram of relation R. write M(R). also find indegree and outdegree of elements of A.

3) Let U = {a, b, c, d, e, f, g, h} be a Universal set having Subset's A ={a, c, d, e} , B = { b, c, d, e, f }then find.

a) $A' \cup B'$ b) $A' - B'$

c) $B - A$ d) $A' \cap B$

B) Define one-one function let f : R→R be a function defined by f(x) = $\frac{5x-4}{3}$; $\forall\, x \in R$. Show that f is one –one. **04**

Q.4 Attempt any two of the following.

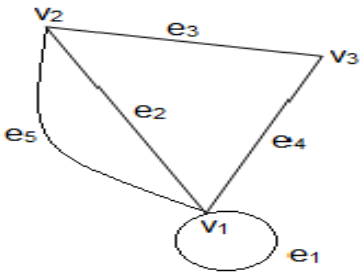
a) How many integer between 1 to 567 which are divisible by either 3 or 5 or 7?

b) Let R = {(1,3), (2,1), (2,4), (3,3), (4,1), (4,2)} be a relation on set A = {1, 2, 3, 4}. Find transitive closure of R, using Warshall's Algorithm. Also draw diagraph of relation R*.

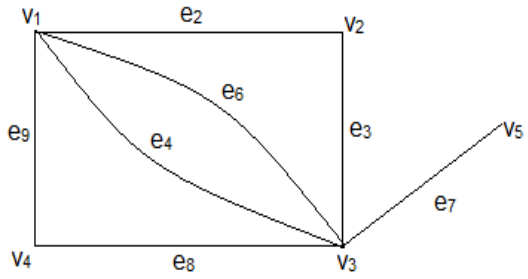
c) Prove that $p \rightarrow (q \vee r)$ and $(p \rightarrow q) \vee (p \rightarrow r)$ are logically equivalent.

Q.5 Answer the following (Any 2): **14**

a) Define pseudo Graph and Find intersection and Ring sum of given two graph G_1 and G_2



G_1



G_2

b) State and prove Distribution property (both) for the sets, by using the universal set
$U = \{1,2,3,4,5,6,7,8,9,10\}$ having subset

$$A = \{1,2,3,4,5,6,7\}, \qquad B = \{4,5,6,8,9,10\}$$
$$C = \{4,5,7,8\}$$

c) Define:

1) Complete Graph
2) Regular Graph
3) Power Set.
4) Surjective Function.

SLR-SD-6

Seat No.	

Set P

B.C.A. (Semester - II) (New) (CBCS) Examination Oct/Nov-2017
ADVANCED PROGRAMMING IN 'C'

Day & Date: Friday, 10-11-2017 Max. Marks: 70
Time: 10.30 AM to 01.00 PM

Instructions: All questions are compulsory.

Q.1 Select correct alternatives and rewrite statement. **14**

1) The value contained in the pointer is _____of another variable.
   a) value b) location
   c) none of a and b d) both

2) If both structure and union contains more than one same data members with same data types then _____requires maximum memory.
   a) structure b) union
   c) both a and b d) none of these

3) All file handling function belongs to _____ header file.
   a) stdio.h b) conio.h
   c) file.h d) process.h

4) strcmp(x,y) returns positive value if _____
   a) x==y b) x<y
   c) x>y d) None of these

5) The members of_____ shares common memory location.
   a) structure b) union
   c) both a and b d) none of these

6) Identify the output of following 'C' code:

```
char    p= 'A';
int     *q;
q=&p;
printf("%d",*q);
```

   a) 65 b) A
   c) compile time error d) none of these

7) _____preprocessor directive used if a macro is not defined.
   a) #undef b) #ifdef
   c) #endif d) #ifndef

8) The function strcat (s1,s2) appends_____ to _____
   a) s1 to s2 b) s2 to s1
   c) s1 to s1 d) s2 to s2

9) The only integer that can be assigned to pointer variable is _____.
   a) -1 b) 0
   c) 1 d) 2

10) _____ function is used to allocate memory dynamically for array.
   a) malloc() b) calloc()
   c) realloc() d) free()

11) The selection operator → requires the use of _____to access members of structure.
   a) array b) object
   c) pointer d) union

12) _____operator is used to combine two tokens within a macro definition to form a single token.
   a) #* b) *#
   c) # # d) **

13) _____statement moves file pointer 'fp' in forward by 'm' bytes.
   a) fseek(fp,m,0) b) fseek(fp,m,1)
   c) fseek(fp,-m,1) d) fseek(fp,-m,2)

14) _____directive is alternative for "if…else…if"
   a) #ifdef b) #elif
   c) #endif d) #ifif

Q.2 Attempt any seven of the followings: **14**

a) Write use of #error directive.
b) Give the difference between calloc( ) and malloc( ).
c) Write syntax and use of rewind().
d) Give the difference between pass by value and pass by pointer.
e) Write use and syntax of strstr( ).
f) How to initialize a structure?
g) List out rules for pointer operations.
h) Write different situations to occur errors during I/O operations on a file.
i) What is command line argument?

Q.3 A) Attempt any two of the followings: **10**

1) What is pointer? List out rules for pointer operations.
2) Write a program that demonstrate passing structure to function as pass by address.
3) Explain strlwr( ) and strupr( ) with example.

B) Write a program that demonstrate use of nested macro to find minimum number between three numbers. **04**

Q.4 Attempt any two of the followings: **14**

a) Write a program that counts total characters, total words, total lines present in text.
b) What is Dynamic memory allocation? Explain malloc( ) and calloc( ) function with suitable example.
c) Write a program which accepts 10 numbers from keyboard. And write prime numbers in "prime.txt" file and non-prime numbers in "nonprime.txt" file between the numbers.

Q.5 Attempt any two of the following. **14**

a) What is Macro? Explain any three predefined macros with example.
b) What is Self-referential structure? Explain it with suitable example.
c) Explain "pointer to function" concept with example.

SLR-SD-7

Seat No.	

Set P

B.C.A. (Semester - II) (New) (CBCS) Examination Oct/Nov-2017
WEB TECHNOLOGY

Day & Date: Monday, 13-11-2017 Max. Marks: 70
Time: 10.30 AM to 01.00 PM

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

Q.1 Choose correct Alternatives **14**

1) How can you open a link in new browser window?
   a) <a href="url" target="_blank"> b) <a href="url" target="_self">
   c) <a href="url" target="_new"> d) <a href="url" target="_window">

2) In what form are style rules presented?
   a) selector {property=value} b) selector {property:value}
   c) selector (property:value) d) selector (property=value)

3) The following elements <header>, <footer>, <article>, <section> are the new elements in HTML5.These elements are called,
   a) Control attributes b) Semantic elements
   c) Graphic elements d) Multimedia elements

4) Which jQuery method is used to show selected elements?
   a) Hidden() b) Display(none)
   c) Visible(true) d) Show()

5) Which of these is NOT a valid comment in JavaScript?
   a) // This is a comment b) /* This is a comment.*/
   c) /* This is a comment d) <!-- This is a comment

6) What is jQuery?
   a) jQuery is a library of JavaScript Function
   b) jQuery stands for Structured Query Language
   c) jQuery stands for Cascading Style Sheets.
   d) jQuery communication between

7) Who is making the Web standards?
   a) Mozilla b) Microsoft
   c) The World Wide Web Consortium d) Google

8) Choose the correct HTML tag for the largest heading.
   a) Head b) h1
   c) h6 d) header

9) HTML5 elements <canvas> gives you an easy and powerful way to draw graphics using JavaScript.
   a) True b) False

10) The default character encoding in HTML5 is.
   a) UTF-16 b) UTF-32
   c) UTF-8 d) ISO-8859-1

11) Abbreviate the term SVG.
   a) Simple Velocity Graphics
   b) Simple Vector Graph
   c) Scalable Vector Graphics
   d) System Vector Graphics

12) What is cell padding?
   a) Used to separate cell wall from their contents.
   b) Used to set space between cells
   c) Both a and b above
   d) Used to provide width to a cell

13) What are meta tags used for?
   a) To store information usually to browser and search engines.
   b) To store information usually only relevant to browsers.
   c) To store information only about search engines.
   d) To store information only about external links.

14) Which of the following is not an event that can trigger a JavaScript?
   a) Mouse actions
   b) Operating system actions
   c) Keyboard actions
   d) Timed actions

Q.2 Explain the following Terms (2X7) **14**

a) WWW
b) Structure of HTML
c) Anchor tag
d) DOC TYPE element
e) Variable in JavaScript
f) Radio Button
g) Links in HTML
h) JQuery
i) <NAV>

Q.3 A) Solve any 2 (2X5)

1) Explain ordered and unordered list with example. **05**
2) Define Image map and explain with example. **05**
3) Explain GET and POST methods and differentiate **05**

B) Create a HTML page which will accept the Userid and password in text boxes and print it with JavaScript on the next page. **04**

Q.4 Solve any 2 (2X7)

a) Explain Table tag with proper example **07**
b) What is CSS. Explain in detail. **07**
c) What is hide() and show() in Jquery. Write a code in Jquery to hide the image when the user clicks on the image. **07**

Q.5 Write short note on

a) String functions in JAVASCRIPT **04**
b) Need of Jquery **04**
c) Event handing in Javascript **04**
d) MEDIA tag in HTML5 **02**

SLR-SD-8

Seat No.	

Set P

B.C.A. (Semester - II) (New) (CBCS) Examination Oct/Nov-2017
SOFTWARE ENGINEERING

Day & Date: Wednesday, 15-11-2017 Max. Marks: 70
Time: 10.30 AM to 01.00 PM

Instructions: 1) Q.1 and Q.7 are compulsory.
2) Attempt any two questions from Q. 2, 3 and 4.
3) Attempt any one question from Q. 5 and 6.

Q.1 Choose correct Alternatives **14**

1) The _____ is the element of a system that involves in modifying the inputs?
   a) Output b) Interface
   c) Processor d) Control

2) The interconnections & interaction among the subsystems are termed as _____
   a) Interface b) Boundary
   c) Object d) All of the these

3) Which of the following feasibility is related to cost benefits analysis aspects?
   a) Operational b) Technical
   c) Economical d) None of these

4) In _____ Model, where the output of one phase is the input to the next one phase.
   a) Process Model b) Waterfall Model
   c) Prototyping d) Spiral

5) The specific techniques used for collecting data are called as _____
   a) Fact Finding Technique b) Feasibility Study
   c) Interview d) None of these

6) The process of getting the data to the computer for processing is called as_____
   a) Data Capture b) Data Collection
   c) Input d) Recording of data

7) _____ defines the relationship between the entities.
   a) DD b) DFD
   c) ERD d) None of these

8) Which of the following is not element of Data Dictionary (DD)?
   a) Length b) Range
   c) Data type d) Data group

9) Banking system is example of _____
   a) TPS b) MES
   c) DSS d) ES

10) Which of the following is not part of DFD?
   a) Arrow b) Process
   c) Disk storage d) Data store

11) The efforts are taken to locate and fix an error in a software product is called as _____
   a) Reusability b) Portability
   c) Reliability d) Maintainability

12) 3NF is eliminating functional dependencies.
   a) True b) False

13) HIPO stands for Hierarchical Input Processing Output.
   a) True b) False

14) The _____ is represented by a rectangle with the name?
   a) Cohesion b) Connection
   c) Couple d) Module

Q.2	**a)**	What is Decision Table? Explain with suitable example.	**05**
	b)	Explain the Incremental approach.	**05**
	c)	What is Software? Explain Characteristics of Software	**04**
Q.3	**a)**	Explain Normalization with suitable example.	**05**
	b)	Briefly discuss Type of relationship in the Entity relation Analysis.	**05**
	c)	Differentiate between open and closed system.	**04**
Q.4	**a)**	Explain structure Chart with example.	**05**
	b)	Discuss Spiral model in details.	**05**
	c)	State the principle objectives of output	**04**
Q.5	**a)**	Draw first level DFD of library system of your college	**07**
	b)	What are fact finding techniques? Describe Interview and Observation technique.	**07**
Q.6	**a)**	Draw and discuss various phase of SDLC	**07**
	b)	Draw first level DFD of Mark sheet Printing System	**07**
Q.7	**Attempt any Two of the following.**		**14**
	a)	Role of system analyst	
	b)	Define system and its basic elements.	
	c)	Data Dictionary	
	d)	Qualities of software	

SLR-SD-9

Seat No.	

Set P

B.C.A. (Semester - II) (New) (CBCS) Examination Oct/Nov-2017
Digital Electronics

Day & Date: Friday, 17-11-2017 Max. Marks: 70
Time: 10.30 AM to 01.00 PM

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.
3) Neat diagram must be drawn wherever necessary.

Q.1 Choose the correct alternatives: **14**

1) The 8086 has _____ byte instruction queue.
   a) 4 b) 6
   c) 8 d) 10

2) NOT gate is _____Gate.
   a) One I/P one O/P b) Two I/P one O/P
   c) One I/P two O/P d) None of these

3) The control word of register base CPU organization is _____bit.
   a) 10 b) 12
   c) 14 d) 16

4) The binary 110 = _____ Gray code.
   a) 101 b) 111
   c) 100 d) 010

5) _____ Memory type have high speed.
   a) Cache b) RAM
   c) HDD d) None of these

6) In virtual memory management _____ address converts to physical address.
   a) Physical b) Logical
   c) Arithmetic d) None of these

7) _____ is 16 bit processor.
   a) 4004 b) 8085
   c) 8086 d) Pentium

8) Half adder circuit has _____ I/P.
   a) 2 b) 3
   c) 1 d) 4

9) When all the I/P of AND gates is _____, then O/P is one.
   a) 0 b) 1
   c) Both 0 and 1 d) None of these

10) The MMX technology introduced in _____processor.
   a) 8086 b) 8088
   c) 80386 d) Pentium

11) The decimal 10 is equivalent to _____BCD.
   a) 00010000 b) 1010
   c) 00000001 d) 10

12) _____ Method is a software priority interrupt.
   a) polling b) daisy chain
   c) parallel d) series

13) To resolve data from stack, it use _____technique.
   a) LIFO b) FIFO
   c) LILO d) FILO

14) Bit length of each segment registers used in 8086 are_____
   a) 16 b) 20
   c) 32 d) 8

Q.2 Solve any seven from the following **14**

1) Explain concept of pipeline.
2) Explain RS232.
3) Explain USB.
4) Explain Half adder.
5) Explain X OR gate.
6) Explain RISC
7) Explain polling
8) State segment register used in 8086
9) Explain Bus System used in microprocessor.

Q.3 a) Attempt any two of the following **10**

1) State and explain flag register used in 8086.
2) Explain with suitable diagram register based CPU Organization.
3) Explain different types of memory hierarchy.

b) Write a note on K-map **04**

Q.4 Attempt any two of the followings: **14**

a) Explain content addressable memory.
b) What is DMA? Explain DMA transfer with suitable diagram.
c) Design basic gates by using universal gates.

Q.5 Attempt any two of the followings: **14**

a) Explain with suitable diagram asynchronous up counter.
b) Explain different types of virtual memory configuration.
c) Draw internal block diagram of 8086. Explain general purpose register of 8086 microprocessor.

SLR-SD-10

Seat No.	

Set P

B.C.A (Semester - II) (New) (CBCS) Examination Oct/Nov-2017
COMPUTER ORIENTED STATISTICS

Day & Date: Monday,20-11-2017 Max. Marks: 70
Time: 10.30 AM to 01.00 PM

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

Q.1 Choose the correct alternative. **14**

1) If population is infinite, then it is studied by _____ method only.
   a) Census b) Sampling
   c) (a) and (b) both d) None of these

2) A measurable characteristic whose value does not changes is called_____.
   a) Discrete variable b) Continuous variable
   c) Constant d) None of these

3) The value of variable that related to maximum frequency is called_____.
   a) A.M b) Median
   c) Mode d) None of these

4) The measure of dispersion that depends up on only extreme observations is called_____.
   a) Range b) s.d
   c) c.v d) None of these

5) Two variables are positively correlated if they are changes _____.
   a) In same direction b) In opposite direction
   c) At random d) None of these

6) If correlation coefficient is – ve, then both regression coefficient are_____.
   a) –ve b) +ve
   c) May be + ve or- ve d) None of these

7) If $\sum p_1 q_1$ =x$\sum p_0 q_0 = y, \sum p_1 q_0 = v, \sum p_0 q_1 = w$, then Laspeyre's price index number is_____.
   a) (v/y) b) (v/y)100
   c) (x/w) d) (x/w)100

8) The events A and B are mutually exclusive if _____.
   a) P(A⊓B) = 0 b) P(A⊓B) = P(A).P(B)
   c) P(A⊓B) = 1 d) None of these

9) The A.M of 10 observation is 20, if each observation is increased by 7 then A.M. will be_____.
   a) 20 b) 10
   c) 27 d) 17

10) If r_{xy} = 0.4, then r_{yx} =_____.
   a) 0.4 b) 0.6
   c) -0.4 d) -0.6

11) if $b_{yx} = -(\frac{4}{3})$, and $b_x = -\left(\frac{1}{3}\right), then\ r_{xy}$ is _____

a) (2/3) b) –(2,3)
c) (4/9) d) –(4,9)

12) The range of 5 observations is 20. If each observation is doubled then range becomes _____.

a) 5 b) 10
c) 20 d) 40

13) Index number is an application of _____.

a) Averages b) Dispersion
c) Regression d) Correlation

14) If P(A) = P(B), then events A and B are_____.

a) Mutually exclusive b) Equally likely
c) Independent d) Exhaustive

Q.2 Answers to the following. [Any seven] **14**

a) Define – Population and Sample.
b) Define – Arithmetic mean.
c) State any two objectives of classification.
d) Define – Regression.
e) Given: Cov(X,Y) = 25, Var(X) = 441, var(Y) = 1600, find correlation coefficient between X and Y.
f) Given: n=10, $\overline{X} = 15, \Sigma X^2 = 3415$. Find Var(X).
g) Find P(A∪B), if P(A) = 0.4, P(B) = 0.5 and P(A⊓B) = 0.3.
h) Find median of 12, 16, 14, 25, 21, 22
i) Given: $\Sigma p_1 q_1 = 140, \Sigma p_1 q_0 = 100, \Sigma p_0 q_0 = 80$. Find Paasch's quantity index number.

Q.3 A) Answer <u>any two</u> of the following questions : **10**

1) A card is drawn at random from a pack of 52 playing cards. Find probability of getting
i) Black card
ii) Picture card

2) Given:$n = 10, \Sigma X = 65, \Sigma Y = 84, \Sigma X^2 = 645, \Sigma Y^2 = 1247, \Sigma XY = 621$. Find correlation coefficient between X and Y.

3) Find Fisher's quantity index number from the data given below.

Commodity	Base year		Current year	
	Price	Quantity	Price	Quantity
A	20	3	15	5
B	8	3	10	4

B) Write a note on cumulative frequency distribution. **04**

Q.4 Answer the following (Any 2): **14**

a) Draw histogram to represent the following data and hence obtain mode.

% of marks	50-55	55-60	60-65	65-70	70-75	75-80	80-85
No. of students	12	18	22	30	28	19	10

b) Find price index for the year 2010 from the following data by
i) Simple aggregate method
ii) Weighted aggregate method

Commodity	**G**	**H**	**K**	**L**
Price in 2009	22	58	70	120
Price in 2010	30	50	66	116
Weight	5	9	4.5	3

c) Explain simple random sampling method and give one illustrated example

Q.5 Answer the following (Any 2): **14**

a) Define S.D and state its merits and demerits.

b) Find A. M and mode for the data given below.

X	14	18	22	27	32	40
f	5	12	17	14	10	3

c) The equations of lines of regression are 4X + 7Y = 89 and 5X + 3Y =71. Find:
i) A.M. of X and Y
ii) Correlation coefficient between X and Y

SLR-SD-11

Seat No.	

Set P

B.C.A. (Semester - III) (New) (CBCS) Examination Oct/Nov-2017
DATA STRUCTURE USING 'C'

Day & Date: Thursday, 09-11-2017 Max. Marks: 70
Time: 02.30 PM to 05.00 PM

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

Q.1 Choose the correct alternatives: **14**

1) Inorder traversal of the binary tree visits the left of the tree, then the root and then to the right of the tree.
   a) True b) False

2) FIFO is used in
   a) Stack b) Linked list
   c) Queue d) None

3) _____sort uses divide and conquer strategy.
   a) Exchange b) Insertion
   c) Radix d) Quick

4) Leaf node of a tree consists of child.
   a) True b) False

5) In circular queue, last element again points to _____element in the queue.
   a) last b) first
   c) middle d) none

6) A tree structure that is balanced with respect to the heights of subtree, such a Tree is called as _____.
   a) Binary tree b) AVL tree
   c) Threaded binary tree d) None of these

7) From remove element from stack _____function is used.
   a) Push b) Pop
   c) Both a and b d) None

8) Linear search is more efficient than binary search.
   a) True b) False

9) Linked list uses _____memory allocation.
   a) Static b) Dynamic
   c) Both a and b d) None

10) The minimum number of fields with each node of double linked list is
   a) 1 b) 2
   c) 3 d) 4

11) In binary expression tree root is always operator.
   a) True b) False

12) In AVL tree height balance of every node must be in _____range.
   a) 0,1, 2 b) -1, 0, 0
   c) 1, 2, 3 d) -1, 0,1

13) Multiple print jobs given to a printer are organized in _____manner.
   a) FIFO
   b) LIFO
   c) Both a and b
   d) none

14) ADT stands for _____
   a) Abstract Data Type
   b) Abstract Definition Type
   c) Abstract Default Type
   d) None of these

Q.2 Solve any seven from the following **14**

a) State different operations performed on a stack.
b) Define Linked List.
c) What do you mean by Height balanced tree?
d) Define Binary search tree with example.
e) What is priority queue?
f) Define Space Complexity and Time Complexity
g) What is greedy algorithm?
h) What are the characteristics of an algorithm?
i) State the different applications of Queue.

Q.3 A) Solve any two of the following **10**

1) Explain in details 'Bubble sort' method.
2) Write a function for Preorder and Postorder traversals.
3) Write an algorithm of conversion of infix expression to postfix expression.

B) Differentiate between stack and queue **04**

Q.4 Write the answer of the following questions(any two) **14**

a) Define Stack. Explain the different operations performed on stack.
b) Define Searching. Write program for Binary Search.
c) Write a program for Singly linear linked list and perform the following operation on it.
   i) Insert at beginning
   ii) Insert at end
   iii) Insert In between

Q.5 Attempt any two of the followings: **14**

a) Write an algorithm for searching an element in a binary search tree.
b) Write program to implement Linear queue using array.
c) Define tree. Explain tree traversal methods in detail.

SLR-SD-12

Seat No.	

Set P

B.C.A. (Semester - III) (New) (CBCS) Examination Oct/Nov-2017
NETWORKING AND DATA COMMUNICATION

Day & Date: Saturday, 11-11-2017 Max. Marks: 70
Time: 02.30 PM to 05.00 PM

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

Q.1 Choose the correct alternatives: **14**

1) The structure or format of data is called
   a) Syntax b) Semantics
   c) Struct d) None of the mentioned

2) Communication between a computer and a keyboard involves _____ transmission
   a) Automatic b) Half-duplex
   c) Full-duplex d) Simplex

3) The physical layer concerns with
   a) Bit-by-bit delivery b) Process to process delivery
   c) Application to application delivery d) None of the mentioned

4) Wireless transmission can be done via
   a) Radio waves b) Microwaves
   c) Infrared d) All of the mentioned

5) Which of the following is true with respect to TCP
   a) Connected-oriented b) Process-to-process
   c) Transport layer protocol d) All of the mentioned

6) CRC stands for
   a) Cyclic redundancy check b) Code repeat check
   c) Code redundancy check d) Cyclic repeat check

7) Which one of the following is the multiple access protocol for channel access control?
   a) CSMA/CD b) CSMA/CA
   c) Both (a) and (b) d) None of the mentioned

8) Retransmission of packets must be done when
   a) Packet is lost b) Packet is corrupted
   c) Packet is needed d) All of the mentioned

9) What is the header size of UDP packet?
   a) 8 bytes b) 8 bits
   c) 16 bytes d) 124 bytes

10) Most packet switches use this principle
   a) Stop and wait b) Store and forward
   c) Both of the mentioned d) None of the mentioned

11) _____Primitives is used to established connection with a waiting peer.
   a) Connect
   b) Listen
   c) Receive
   d) None of these

12) _____Layer is used to transform a raw transmission facility into a connection link
   a) Physical
   b) Data Link
   c) Network
   d) None of these

13) _____uses LED emitter for data communication.
   a) UTP
   b) STP
   c) Single mode fiber
   d) Multimode fiber

14) _____Mechanism is used to control congestion in virtual subnet.
   a) Admission control
   b) Retransmission
   c) Discard
   d) None of these

Q.2 Solve any seven from the following **14**

a) TCP and UDP stands for.
b) What is the function of repeater?
c) State data communication components.
d) Define Frequency and Amplitude.
e) Define Flow control.
f) RTP and HTTP stands for
g) Define Error? State types of error.
h) What is protocol?
i) Define Network.

Q.3 A) Attempt any two of the followings: **10**

1) Explain Congestion prevention policies.
2) Explain data representation in detail.
3) Explain Telephone system.

B) Explain Protocol Hierarchies in detail. **04**

Q.4 Attempt any two of the followings: **14**

a) Differentiate between TCP and UDP.
b) Explain Shortest Path Routing in detail.
c) Define Unguided media and explain satellite communication in detail.

Q.5 Attempt any two of the followings: **14**

a) Explain Router in detail.
b) Explain ALOHA in detail.
c) Explain Packet switching in detail.

SLR-SD-13

Seat No.	

Set P

B.C.A. (Semester - III) (New) (CBCS) Examination Oct/Nov-2017
DBMS WITH ORACLE

Day & Date: Tuesday, 14-11-2017 Max. Marks: 70
Time: 02.30 PM to 05.00 PM

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

Q.1 Choose the correct alternatives: **14**

1) A transaction completes its execution is said to be -
   a) Aborted b) Loaded
   c) Rolled d) Committed

2) _____is used to input the entry and give the result in a variable in a procedure.
   a) Put and Get b) Get and Put
   c) Out and In d) In and Out

3) The _____condition allows a general predicate over the relations being joined.
   a) ON b) Using
   c) Set d) Where

4) The operation which is not considered a basic operation of relational algebra is _____
   a) Join b) Selection
   c) Union d) Cross Product

5) _____clause is an additional filter that is applied to the result.
   a) Select b) Group by
   c) Having d) Order by

6) Which one of the following attribute can be taken as a primary key?
   a) Name b) Street
   c) ID d) Department

7) Update table statement is _____statement
   a) DML b) DDL
   c) DCL d) None of the above

8) To delete particular column in a relation the command used is _____.
   a) Update Table b) Truncate Column
   c) Alter, Drop d) Delete Column

9) The unit of storage that can store one or more records in a hash file organization are _____.
   a) Buckets b) Disk pages
   c) Blocks d) Nodes

10) The Deadlock state can be changed back to stable state by using _____statement.
   a) Commit b) Rollback
   c) Savepoint d) Deadlock

11) Tape storage is referred to as _____storage.
   a) Random-access b) Direct-access
   c) Sequential-access d) All of the mentioned

12) Which of the following causes system to crash?
   a) Bug in software b) Loss of volatile data
   c) Hardware malfunction d) All of the mentioned.

13) Which prefixes are available to oracle triggers?
   a) : new only b) : old only
   c) Both : new and : old d) Neither : new nor : old

14) The _____clause is used to list the attributes desired in the result of a query.
   a) Where b) Select
   c) Form d) Distinct

Q.2 Answer any seven from the following **14**

a) What is attribute explain any two types?
b) What is tuple with example?
c) What is Trigger?
d) Explain any two relational algebraic operations?
e) What is view? Write its syntax?
f) What is the sub-query? Write its syntax?
g) Explain Order by Clause with syntax and example?
h) Write down any 4 String function in sql?
i) What is deadlock?

Q.3 A) Attempt any two of the followings: **10**

1) What is DBMS? Explain advantages and disadvantages of DBMS?
2) Explain E.F.Codd rules in detail?
3) What is Index? Explain it with syntax and example.

B) Explain Structure of PL/SQL with suitable example. **04**

Q.4 Attempt any two of the followings: **14**

a) What is Transaction? Explain ACID properties of transaction?
b) Write DDL commands with proper syntax and example?
c) What is cursor? Explain cursor attributes with suitable example?

Q.5 Attempt any two of the followings: **14**

a) What is procedure? Explain parameters of procedures with suitable program?
b) Write a note on exception handling in PL/SQL with proper syntax and suitable example?
c) What is Join? Explain types of outer joins in detail with syntax and example?

SLR-SD-14

Seat No.	

Set P

B.C.A (Semester - III) (New) (CBCS) Examination Oct/Nov-2017
OOP WITH C++

Day & Date: Thursday, 16-11-2017 Max. Marks: 70
Time: 02.30 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. **14**

1) In Object-oriented programming, the problem is divided into_____.
   a) Classes & objects b) Functions
   c) Structures d) Modules

2) Ability of an operator or function call to take different forms is known as _____.
   a) Polymorphism b) Encapsulation
   c) Overloading d) Inheritance

3) _____ is not a type of Constructor.
   a) Copy b) Friend
   c) Default d) Parameterized

4) _____ means determining at runtime what method to invoke?
   a) Data hiding b) Dynamic Typing
   c) Dynamic binding d) Dynamic Loading

5) _____ is the default visibility mode for members of classes in C++?
   a) Private b) Public
   c) Protected d) Static

6) _____ concept of OOP means exposing only necessary information to client?
   a) Encapsulation b) Abstraction
   c) Data Hiding d) Data Binding

7) Which among following is correct way of declaring object of a class?
   a) Classname Object name; b) Class Classname Object name;
   c) Class Classname d) Object Object name;

8) What is true about Constructor?
   a) Its name is plural of class name.
   b) Its name has * symbol before it.
   c) Its name is same as of class name.
   d) Its name has # symbol before it.

9) What is actual syntax of destructor in c++?
   a) !Classname() b) @Classname()
   c) $Classname() d) ~Classname()

10) The process of deriving a class from another derived class is known as_____ inheritance.
   a) Single b) Hybrid
   c) Multiple d) Multilevel

11) Destructors are called?
   a) Not defined
   b) In any order
   c) In the reverse order of constructor calls
   d) In the same order of constructor calls

12) A constructor function is generally defined_____.
   a) In the private section of a class
   b) In the public section of a class
   c) In the protected section of a class
   d) None of the above

13) What among following is a generic class?
   a) Function Template
   b) Class template
   c) Inherited Template
   d) None of the above

14) The objects can directly access?
   a) Public members
   b) Private members
   c) Both of above
   d) None of the above

Q.2 Answers to the following: [Any seven] **14**

a) What is Data Abstraction?
b) What is C++ Tokens?
c) What is Static Member Function?
d) What is Dynamic Memory allocation?
e) What is Run time Polymorphism?
f) What is Virtual Destructor?
g) What is Command Line Arguments?
h) What is Exception?
i) What is Function Template?

Q.3 A) Answer <u>any two</u> of the following questions : **10**

1) Difference between Procedure oriented programming and Object Oriented Programming.
2) Explain in detail call by reference, with program.
3) Explain in detail Virtual Functions with program.

B) What is the use of Scope Resolution Operator? **04**

Q.4 Answer the following. (Any 2) **14**

a) What is Friend Function? Explain with suitable example.
b) Write a C++ program which copies contents of one file to another.
c) Explain in detail basic concepts of OOP?

Q.5 Answer the following. (Any 2) **14**

a) Define Inheritance? Explain in detail Multi-level Inheritance.
b) Write a C++ Program to find largest and smallest number by taking values from the user (Use Functions).
c) What is Constructor? Explain in detail about Copy Constructor?

SLR-SD-15

Seat No.	

Set P

B.C.A (Semester - III) (New) (CBCS) Examination Oct/Nov-2017
OPERATIONS RESEARCH

Day & Date: Saturday, 18-11-2017 Max. Marks: 70
Time: 02.30 PM to 05.00 PM

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

Q.1 Choose the correct alternative. **14**

1) To find the optimal solution, we apply_____.
   a) LPP b) VAM
   c) MODI Method d) Rim

2) _____ method is used to solve an assignment problem.
   a) Elurian b) Hamiltion
   c) Hungarian d) None of these

3) A given TP is said to be unbalanced, if the total supply is not equal to the total_____.
   a) Optimization b) Demand
   c) Cost d) None of these

4) The dual of LPP is _____.
   a) Dual b) Primal
   c) Standard d) None of these

5) The objective of TP is to _____ the total transportation cost.
   a) Maximize b) Optimize
   c) Minimize d) Stabilize

6) The graphical method of solving LPP can be used when the numbers of variables in the objective function are_____.
   a) 0 b) 1
   c) 3 d) 2

7) Hungarian method is the method of solving_____.
   a) Assignment problem b) Transportation problem
   c) Linear programming problem d) Dual problem

8) Optimal solution is a feasible solution (not necessarily basic) which minimizes the_____.
   a) Time taken b) Partial cost
   c) Total cost d) None of the above

9) If demand is lesser than supply then dummy demand node is added to make it a _____.
   a) Simple problem b) Balanced problem
   c) Transportation problem d) None of the above

10) The collection of all feasible solution is known as_____.
   a) Total feasible solution b) Combined solution
   c) Feasible region d) None of these

11) Standard form of LPP has the characteristics of _____.
   a) All constants are equations except for the non-negativity condition.
   b) The right hand side element of each constant equation is non negative.
   c) All variables are non-negatives.
   d) All of above.

12) The non-negative variable that has to be added to a constraints inequality of the form ≤ to change it to an equation is called_____.
   a) Slack variable
   b) Surplus variable
   c) Artificial slack variable
   d) None of these

13) If one or more values of the basic variables are zero valued then the solution of the system is said to be_____.
   a) Non degenerate solution
   b) Degenerate solution
   c) Inconsistent solution
   d) None of the these

14) Any set of non-negative allocations (Xij>0) which satisfies the raw and column sum (rim requirement) is called a _____.
   a) Linear programming
   b) Basic feasible solution
   c) Feasible solution
   d) None of the above

Q.2 Answers to the following. [Any seven] **14**

a) Convert the following A.P of maximization type in to minimization type.

$$\begin{array}{c} \\ P \\ Q \\ R \\ S \end{array}\begin{array}{c} \begin{array}{cccc} A & B & C & D \end{array} \\ \begin{bmatrix} 2 & 10 & 9 & 7 \\ 15 & 4 & 14 & 8 \\ 13 & 14 & 16 & 11 \\ 4 & 15 & 13 & 9 \end{bmatrix} \end{array}$$

b) Define decision variable.

c) Write standard form of following LPP.
Maximize z=25x+36y subject to
3x+5y≤4;
x≤6;
4x+6y≤12;
X, y≥0

d) Define balanced T.P.

e) Define surplus variable.

f) Give the steps to formulate LPP.

g) Define non degenerate solution of T.P.

h) Give the method of finding IBFS in T.P.

i) Define objective function with example.

Q.3 A) Attempt any two of the following. **10**

1) A company produces T.V and Washing Machine. The weekly production cannot exceed 20 T.V's and 30 Washing Machines. There are 60 workers.
A T.V requires 2 men weeks and a Washing Machine requires 1 man week of labour. A T.V gives a profit of Rs. 1600 and a Washing Machine gives a profit Rs. 1000. Find weekly production of each so as to maximize the profit.

2) Write the dual of the following LPP.
Maximize z= 5x1+12x2+4x2.
Subject to x1+2x2+4x3≤10.
2x1-x2+3x3≤8.
x1, x2, x3≥0.

3) A marketing manager has 5 salesmen and 5 sales district. Considering of the salesmen and the nature of district, the marketing manger estimates that sales per month (in hundred rupees) for each salesman in each district would be as follows.

		District				
		A	**B**	**C**	**D**	**E**
Salesman	1	32	38	40	28	40
	2	40	24	28	21	36
	3	41	27	33	30	37
	4	22	38	40	35	39
	5	29	33	40	35	39

Find the assignment of salesmen to districts that will result in a maximum sale.

B) Define canonical form of LPP. Give any example. **04**

Q.4 Answer the following (Any 2): **14**

a) Maximize z=4x+5y subject to
3x+2y≤60, 3x+10y≤182.
x≥0, y≥0.

b) Obtain initial basic feasible solution for the following problem by Northwest corner method.

		Warehouse P	Q	R	S	
Factory	A	6	5	8	5	30
	B	5	11	9	7	40
	C	8	9	7	13	50
		35	28	32	25	120

c) Find solution of Transportation Problem using Least Cost method.
TOTAL no. of supply constraints: 3
TOTAL no. of demand constraints: 4
Problem Table is

	D_1	D_2	D_3	D_4	Supply
S_1	11	13	17	14	250
S_2	16	18	14	10	300
S_3	21	24	13	10	400
Demand	200	225	275	250	

Q.5 Answer the following (Any 2): **14**

a) Find IBFS by VAM and optimal solution by MODI.

	I	II	III	IV	ai
A	15	10	17	18	2
B	16	13	12	13	6
C	12	17	20	11	7
Bj	3	3	4	5	15

b) Write the dual, solve it and hence obtain the solution of primal.

Minimize z=2x1+2x2

Subject to 2x1+4x2≥1.

X1+2x2≥1.

2x2+x2≥1.

X1, x2x2≥0.

c) Write the following assignment problem for minimum cost by Hungarian method.

Jobs

Persons

$$\begin{array}{c} \\ A \\ B \\ C \\ D \\ E \end{array} \begin{array}{c} \begin{array}{ccccc} I & II & III & IV & V \end{array} \\ \begin{bmatrix} 11 & 17 & 8 & 16 & 20 \\ 9 & 7 & 12 & 6 & 15 \\ 13 & 16 & 15 & 12 & 16 \\ 21 & 24 & 17 & 28 & 26 \\ 14 & 10 & 12 & 11 & 15 \end{bmatrix} \end{array}$$