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END SEMESTER EXAMINATION, JANUARY-2018

PROGRAM : BCA FIRST SEMESTER

COURSE CODE : BCA105

COURSE TITLE : FOUNDATION COURSE IN MATHEMATICS-I

[Time allotted: Three hours]

[Max. Marks: 100]

Note: Attempt all Sections & Questions.

Section (A)

- Q. 1.** Attempt all questions: **(2 × 10 = 20)**
- a. State Rolle's Theorem.
 - b. Define the modulus of a vector.
 - c. Define a diagonal matrix with an example.
 - d. Write the value of $\lim_{x \rightarrow 0} \frac{\sin x}{x}$.
 - e. Write Binomial expansion of the function $(1 + x)^n$.
 - f. What is the condition that a curve will be symmetrical about the line $y = x$?
 - g. Find the n_{th} derivative of the function $\log(ax + b)$.
 - h. Find the projection of the vector $\hat{i} - 2\hat{j} + \hat{k}$ on $4\hat{i} - 4\hat{j} + 7\hat{k}$.
 - i. Solve the integral $\int x \sin x^2 dx$.
 - j. Find the value of $\lim_{x \rightarrow 0} \frac{10 - 10 \cos x}{x^2}$.

Section (B)

- Q. 2.** Attempt any 5 questions. **(7 × 5 = 35)**
- a. If $A = \begin{bmatrix} 1 & 2 & -1 \\ 3 & 0 & 2 \\ 4 & 5 & 0 \end{bmatrix}$ and $B = \begin{bmatrix} 1 & 0 & 0 \\ 2 & 1 & 0 \\ 0 & 1 & 3 \end{bmatrix}$, verify that $(AB)' = B'A'$.
 - b. Find the coefficient of x^{-2} in the expansion of $(x - \frac{1}{x^2})^8$.
 - c. Find the value of the integral $\int \cot^5 x dx$.
 - d. Find the Adjoint of the matrix $\begin{bmatrix} 8 & -6 & 2 \\ -6 & 7 & -4 \\ 2 & -4 & 3 \end{bmatrix}$.
 - e. Find the maxima and minima of the function $f(x) = (x-1)(x-2)(x-3)$.
 - f. Find the value of λ , which makes the vectors $3i - 2j + 4k$, $6i + \lambda j + k$ and $2i + 2j + 6k$ coplanar.
 - g. Obtain the square root of the complex number $x^{1/x}$.

Section (C)

Attempt any 3 questions.

(15 × 3 = 45)

- Q. 3.** a. Solve the following system of equations by Cramer rule **(7.5)**
- $$\begin{aligned} x + y + z &= 3, \\ x + 2y + 3z &= 4, \\ x + 4y + 9z &= 6. \end{aligned}$$
- b. Evaluate $\lim_{n \rightarrow 0} \frac{5^{n+1} + 7^{n+1}}{5^n - 7^n}$. **(7.5)**
- Q. 4.** a. Find the inverse of the matrix $\begin{bmatrix} 1 & 1 & 1 \\ 2 & 4 & 2 \\ 3 & 2 & 7 \end{bmatrix}$. **(7.5)**
- b. Verify Rolle's Theorem for the function $f(x) = x(x+2)e^{-x/2}$ in the interval $(-2, 0)$. **(7.5)**

Q. 5. a. If $\cos^{-1}\left(\frac{y}{b}\right) = \log\left(\frac{x}{n}\right)^n$, show that $x^2y_{n+2} + (2n+1)xy_{n+1} + 2n^2y_n = 0$. (7.5)

b. Using L' Hospital rule, evaluate $\lim_{x \rightarrow 0} \left[\frac{1}{x} - \frac{1}{x^2} \log(1+x) \right]$. (7.5)

Q. 6. a. Find the maximum and minimum values of the function $y = x^{1/x}$. (7.5)

b. Find $\frac{dy}{dx}$, if $y = \sqrt{\cos x \sqrt{\cos x \sqrt{\cos x \dots \dots \dots \infty}}}$ (7.5)

Q. 7. a. If $2 \cos \theta = x + \frac{1}{x}$ and $2 \cos \phi = y + \frac{1}{y}$, then prove that $x^m y^n + \frac{1}{x^m y^n} = 2 \cos(m\theta + n\phi)$. (7.5)

b. Show that if $\begin{vmatrix} a & a^2 & 1+a^3 \\ b & b^2 & 1+b^3 \\ c & c^2 & 1+c^3 \end{vmatrix} = 0$, then $1 + abc = 0$. (7.5)

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END SEMESTER EXAMINATION, JANUARY-2018

PROGRAM : BCA FIRST SEMESTER

COURSE CODE : BCA107 COURSE TITLE : PROGRAMMING CONCEPTS USING C LANGUAGE

[Time allotted: Three hours]

[Max. Marks: 100]

Note: Attempt all Sections & Questions.

Section (A)

- Q. 1. Attempt all questions. (2 x 10 = 20)
a. What is the difference between declaration and initialization of a variable? Explain with an example.
b. What are the 'actual' parameters and 'formal' parameters used in functions? Explain.
c. How to declare a variable globally? Explain with a suitable example.
d. What is keywords? How many keywords are used in C language?
e. What is Token? Classify different types of tokens used in C language.
f. What is the difference between array and structure?
g. Give the name of inventor of C language.
h. What is an operator? List out different types of operators used in C language.
i. Define translator.
j. Give the application of size of () operator.

Section (B)

- Q. 2. Attempt any 5 questions. (7 x 5 = 35)
a. What are the differences between Interpreter and Compiler?
b. Define character array with an example. Write a program to concatenate two strings.
c. What is pre-processor? List the different types of pre-processor directives used in C language.
d. What is storage class? Explain different types of storage class used in C language.
e. Define dynamic memory allocation and de-allocation with an example.
f. What is the difference between pre-increment and post-increment? Explain each with an example.
g. What is type casting? What is the difference between implicit and explicit type casting?

Section (C)

- Attempt any 3 questions. (15 x 3 = 45)
Q.3. a. What is recursion? Explain with a suitable example. 7
b. Write a program to calculate factorial of a given number using recursive function. 8
Q.4. a. What is a function? Mention five characteristics of functions.
b. Write a program to enter any number up to 4-digits. Find reverse of this number using function. 8
Q.5. a. What is structure? What is the difference between structure and union? 8
b. Write a program to define a structure named "address" whose members are hno, street, city.
Take inputs through the keyboard and print the details on the screen. 7
Q.6. Explain the following:
a. Macro substitution 8
b. File inclusion 7
Q.7. a. What is pointer? Define pointer of pointer variable with an example. 7
b. Write a program to enter any two values. Find largest value using function, we can force a function
to return a value to the calling function. 8

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END SEMESTER EXAMINATION, JANUARY-2018

PROGRAM : BCA FIRST SEMESTER

COURSE CODE : BCA104

COURSE TITLE : ENVIRONMENTAL STUDIES

[Time allotted: Two hours]

[Max. Marks: 50]

Note: Attempt all Sections & Questions.

Section (A)

Q. 1. Attempt **all** questions.

(1 x 10 = 10)

- a. Write full form of SPCB.
- b. Name first two layers of atmosphere.
- c. Define ecological pyramid.
- d. A.G. Tansley coined the term
- e. Write two disadvantages of biomass energy.
- f. Write an example of zero waste technology.
- g. Write an example of NGO which work for environmental protection.
- h. Write two examples of secondary air pollutants.
- i. Name two hydrocarbons emitted by automobiles.
- j. Define toxicology.

Section (B)

Q. 2. Attempt **any 4** questions.

(4 x 5 = 20)

- a. What are the objectives of sustainable development?
- b. Write note on municipal solid waste management.
- c. What are the silent features of Wildlife Protection act, 1972?
- d. What are different types of ecosystems?
- e. What is the necessity of environmental impact assessment?
- f. What are the causes of global warming?

Section (C)

Attempt **any 2** questions.

(10 x 2 = 20)

- Q. 3.**
 - a. Describe the environmental consequences of burning of fossil fuels.
 - b. What is Ecological succession? What are its causes?
- Q. 4.**
 - a. Describe the control measures to prevent environmental pollution.
 - b. What do you mean by green technology? What are its advantages?
- Q. 5.**
 - a. What are the harmful effects of mercury and lead?
 - b. Discuss wasteland reclamation methods.

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END SEMESTER EXAMINATIONS, JANUARY 2018**PROGRAM : BCA FIRST SEMESTER****COURSE CODE:BCA101 COURSE TITLE:COMPUTER FUNDAMENTAL AND INFORMATION TECHNOLOGY****[Time allotted: Three hours]****[Max. Marks: 100]****Note:** Attempt all Sections & Questions.**Section (A)****Q.1.** Attempt all questions.**(2 x 10 = 20)**

- a. What is DBMS?
- b. Define Unix.
- c. What is Power Point?
- d. What is denial of Service attacks?
- e. Write full form of: i. MIPS ii. HTML iii. GUI iv. OSI
- f. Give any five domain names.
- g. What is a machine language? Why it is required?
- h. What is Virus?
- i. Give introduction to MS-Windows.
- j. What is Browser?

Section (B)**Q.2.** Attempt any 5 questions.**(7 x 5 = 35)**

- a. What is the difference between DOS and windows?
- b. What is the difference between computer software and computer hardware?
- c. Explain the use of different types of computer with their functional areas.
- d. Define 'Internet'. Discuss the history of internet.
- e. What is an e-mail? Write the steps to send an e-mail to another person with an attachment?
- f. Differentiate between the characteristics of primary and secondary storage of a computer system.
- g. What is peripheral device? Describe different peripheral devices in detail.

Section (C)

Attempt any 3 questions.

(15 x 3 = 45)**Q.3.** a. Convert the following:**(1*5=5)**

- i. $(110110)_2 = (?)_{10}$
- ii. $(2AC)_{16} = (?)_8$
- iii. $(1694)_{10} = (?)_2$
- iv. $(125)_6 = (?)_4$
- v. $(9874)_{10} = (?)_{16}$

b. Define the following terms with respect to the internet:

(2.5*4=10)

- i. Trojan Attack ii. HTTP iii. URL iv. Routers

Q.4. a. What is meant by an operating system? Explain the functions of an operating system.**(7)**

b. Explain the following DOS commands with their syntax:

(2*4=8)

- i. Move ii. Make directory iii. Copy iv. Rename a file

Q.5. a. Explain the OSI reference model of internet. Explain all the layers.**(7)**

b. What is topology? Explain the various network topologies in detail.

(8)**Q.6.** a. What are cookies? Explain the different types of cookies.**(6)**

b. State the differences between:

(3*3=9)

- i. LAN, MAN, WAN ii. Hardware and Software iii. MS Word and MS Excel

Q.7. a. What is "generation" in computer terminology? List various computer generations along with key characteristics of computer of each generation.**(7)**

b. Write short notes on:

(2*4=8)

- i. Any two output device with diagram ii. Any two input device with diagram

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END SEMESTER EXAMINATIONS, JANUARY-2018**PROGRAM : BCA FIRST SEMESTER****COURSE CODE : BCA103****COURSE TITLE : ENGLISH LANGUAGE & COMMUNICATION SKILLS****[Time allotted: Two hours]****[Max. Marks: 50]****Note:** Attempt all Sections & Questions.**Section (A)****Q. 1. Attempt all questions.****(1 x 10 = 10)**

- a. Define 'Feedback' in the process of communication.
- b. Write the past participle (3rd form) of following verbs:-
(i) Drive (ii) Steal (iii) Become (iv) Top
- c. Write a synonym for the following:-
(i) Accuse (ii) Verdict (iii) Discriminate (iv) Distract
- d. Write an antonym for the following:-
(i) Scarcity (ii) Increase (iii) Brutal (iv) Ruin
- e. Make a sentence using the following Prepositions:-
(i) Besides (ii) Below
- f. Make sentences to show the difference in meaning of:-
(i) Course/coarse (ii) vain / vein
- g. Insert appropriate articles where required:-
(i) Earth moves round sun. (ii) She is intelligent girl in class.
- h. What do you know by 'ideation' in communication process?
- i. Define semantic barriers to communication.
- j. Correct the following sentences:-
(i) Ravi is more better than Deepak. (ii) He runs much fast.

Section (B)**Q. 2. Attempt any 4 questions.****(4 x 5 = 20)**

- a. Define Active and Passive listening. Discuss any six methods of improving listening skills.
- b. What do you know by barriers to communication? Explain any four barriers to communication with examples.
- c. Write a note on any one of the following:-
(i) Grapevine channel of communication (ii) Importance of non-verbal communication
- d. Define skimming and scanning reading. Discuss any four methods of improving reading skills.
- e. Fill in the blanks with correct words from the brackets:-
(i) One of my classmates ___ submitted the list. (have, has, are)
(ii) Neither Ravi nor Deepak ___ taken our luggage. (have, has , are)
(iii) Rice and curry ___ his favorite food. (are, is)
(iv) Less than half the amount ___ been wasted. (has, have)
(v) The committee has ___ its report. (submit, submitted, submission)
(vi) The teachers or the student ___ on the ground. (walk, walks, walking)
(vii) Everybody ___ to read fiction. (love, loves, loving)
(viii) The boy, though he had lot of problems in other places, ___ his class easily. (finds, find)
(ix) There ___ no reasons to this problem. (is, are)
(x) A man with 10 cats ___ in that big house. (live, lives)
- f. Use the following idioms into sentences of your own:
(i) Black & white (ii) A hard nut to crack (iii) Dark horse
(iv) To burn one's finger (v) To call it a day

Section (C)

Attempt **any 2** questions.

(10 x 2 = 20)

Q. 3. Write an application to the Dean of your college requesting him to arrange an industrial tour for your class. Invent necessary details.

Q. 4. Write an essay on **any one** of the following topics (300-350 words) :-

- (i) Importance of English Language Lab (ii) Corruption (iii) Technical Education

Q. 5. Read the following passage and answer the questions given below:-

Persuasion is the art of convincing someone to agree with your point of view. According to the ancient Greek philosopher Aristotle, there are three basic tools of persuasion: ethos, pathos, and logos. Ethos is a speaker's way of convincing the audience that a person is a credible source. An audience will consider a speaker credible if a person seems trustworthy, reliable, and sincere. This can be done in many ways. For example, a speaker can develop ethos by explaining how much experience or education a person has in the field. After all, you would be more likely to listen to advice about how to take care of your teeth from a dentist than a firefighter. A speaker can also create ethos by convincing the audience that she/he is a good person who has their best interests at heart. If an audience cannot trust you, you will not be able to persuade them. Pathos is a speaker's way of connecting with an audience's emotions. For example, a speaker who is trying to convince an audience to vote for him might say that he alone can save the country from a terrible war. These words are intended to fill the audience with fear, thus making them want to vote for him. Similarly, a charity organization that helps animals might show an audience pictures of injured dogs and cats. These images are intended to fill the viewers with pity. If the audience feels bad for the animals, they will be more likely to donate money. Logos is the use of facts, information, statistics, or other evidence to make your argument more convincing. An audience will be more likely to believe you if you have data to back up your claims. For example, a commercial for soap might tell you that laboratory tests have shown that their soap kills all 7,000,000 of the bacteria living on your hands right now. This piece of information might make you more likely to buy their brand of soap. Presenting this evidence is much more convincing than simply saying "our soap is the best!" Use of logos can also increase a speaker's ethos; the more facts a speaker includes in his argument, the more likely you are to think that he is educated and trustworthy. Although ethos, pathos, and logos all have their strengths, they are often most effective when they are used together. Indeed, most speakers use a combination of ethos, pathos, and logos to persuade their audiences. The next time you listen to a speech, watch a commercial, or listen to a friend try to convince you to lend him some money, be on the lookout for these ancient Greek tools of persuasion.

- a. Give a suitable title to the passage and justify your answer. (2)
- b. What is the best antonym for credible? (i) Intelligent (ii) Boring (iii) Dishonest (iv) Amazing (2)
- c. Which is the most effective tool of persuasion according to the passage? Why? (2)
- d. Find the similar words for the following in the passage: - (2)
- (i) Contain (ii) Hurt (iii) Truthful (iv) Earliest
- e. According to you, which is the best method of persuasion and why? (2)

END SEMESTER EXAMINATION, JANUARY-2018**PROGRAM : BCA FIRST SEMESTER****COURSE CODE : BCA102****COURSE TITLE : DIGITAL ELECTRONICS****[Time allotted: Three hours]****[Max. Marks: 100]****Note:** Attempt all Sections & Questions.**Section (A)****Q. 1.** Attempt all questions.**(2 x 10 = 20)**

- a. Convert the following in Gray code i) (110111) = (?) ii) (10101) = (?)
- b. Minimize the following expression using Boolean algebra $abc' + ab + ac' + abc'$ to minimum number of terms
- c. Draw the logic diagram of function $F = W'X'Y' + WY' + XY$
- d. Draw logic circuit diagram of SR flip flop and write its characteristics table.
- e. Design 4 bit UP counter using D flip flop.
- f. Design AND gate using NOR gate only and verify using truth table.
- g. What is the function of magnitude comparator in digital electronics?
- h. What is role of state table in design of sequential circuit?
- i. Explain register. What are the different type of register?
- j. Design logic circuit for full adder using two half adder and an OR gate.

Section (B)**Q. 2.** Attempt any 5 questions.**(7 x 5 = 35)**

- a. Explain the Associative and distributive theorem and prove it by truth table.
- b. Explain the working of serial input and parallel output shift register.
- c. Define JK flip flop with characteristics equation and characteristics table
- d. What is the role 2's compliment in digital electronics? Given the two binary number A = 10100 and B = 11011 Perform the subtraction A-B using 2's Compliment
- e. Design the full subtractor with its truth table.
- f. From the given equation $A(t+1) = \sum d(A, B, x) = \sum (1,3,5)$, $B(t+1) = \sum d(A, B, x) = \sum (1,3,5)$, and $Y(A, B, x) = \sum (6,7)$, design a logic diagram of sequential circuit with two D flip flop and one input.
- g. Explain the working of SR latch using NAND gate.

Section (C)

Attempt any 3 questions.

(15 x 3 = 45)

- Q. 3.**
 - a. Express the Boolean Function $F = xy + x'z$ as a product of maxterm. (7.5)
 - b. Simplify the Boolean function using K-Map $F(A, B, C) = \sum (0, 1, 2, 5) + \sum d(3, 7)$. Also design the logic circuit using only NOR gate. (7.5)
- Q. 4.**
 - a. For the Boolean expression $F = A'BC + AB'C + A'B'C + ABC$. (7.5)
 - i. Find the truth table of F.
 - ii. Find its complement using De Morgan's Theorem
 - iii. Minimize the equation and draw its logic diagram using gate
 - b. Explain the function of memory element in sequential circuit. Explain SR Latch using NOR gate with table and circuit diagram.
- Q. 5.**
 - a. What do you mean by flip flop? What is the difference between latch and flip flop (7.5)
 - b. Explain the working of MOD 10 ripple counter using D flip flop with circuit and timing diagram (7.5)
- Q. 6.**
 - a. Design all the basic gate using NOR gate and verify the truth table. (7.5)
 - b. Simplify the Boolean function to a minimum numbers of literals i) $(A + B) (B + B')$ ii) $AB + A'C + BC$ and also design the circuit for both after minimization. (7.5)
- Q. 7.**
 - a. Explain the difference between ripple counter and synchronous counter. Draw circuit diagram of 2 bit ripple counter along with timing diagram. (7.5)
 - b. Explain the working of serial input serial output shift register with timing diagram (7.5)

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END SEMESTER EXAMINATION, JANUARY-2018

PROGRAM : BCA FIRST SEMESTER

COURSE CODE : BCA106

COURSE TITLE : PRINCIPLES AND PRACTICES OF MANAGEMENT

[Time allotted: Three hours]

[Max. Marks: 100]

Note: Attempt all Sections & Questions.

Section (A)

Q. 1. Attempt all questions.

(2 x 10 = 20)

- a. System thinking approach
- b. Substitution effect method of forecasting
- c. Line authority
- d. Effectiveness
- e. Authority
- f. Controlling
- g. Leading
- h. Narrow Organization structure
- i. Self-Esteem needs
- j. Quantitative approach to management

Section (B)

Q. 2. Attempt any 5 questions.

(7 x 5 = 35)

- a. Span of Control
- b. Job rotation, enlargement, and enrichment
- c. Interpersonal and decisional roles at managerial position
- d. Levels of managers and their roles in organization
- e. Modern and contingency approach to management
- f. McGregor's Theory X and Y managers
- g. Management is art or science

Section (C)

Attempt any 3 questions.

(15 x 3 = 45)

- Q. 3. a. Explain chain of command and process of delegation of authority with examples (7.5)
 b. List and explain diagnostic and conceptual skills required by Manager. (7.5)

Q. 4. Mr. Sindhwal, local corporator, is planning to conduct Education Fair in your area. He has come to know that you have learnt management principles in your college. He has asked your help regarding how to manage his camp.

- a. Explain him management process (7.5)
- b. Provide list of resources those has to be managed during camp (7.5)

Q. 5. a. Explain Planning process with example. (7.5)

b. Explain in detail centralization and decentralization. (7.5)

Q. 6. a. Marketing manager is planning to purchase bike for his sales team. Assist him/her how to take decision with help of decision making process (7.5)

b. Explain various contemporary issues to be handled by managers (7.5)

Q. 7. a. Explain how Maslow's Need Hierarchy model can be applied for motivating employees. (7.5)

b. Explain departmentalization element of organizing. (7.5)

- b. Using shortest Job First scheduling technique calculates the average Turnaround Time for the following processes.

PROCESS	ARRIVAL TIME	BURST TIME
1	5	3
2	7	1
3	6	2
4	1	1
5	1	2
6	8	3

- Q.4. a. Using Longest Job First scheduling technique calculates the average Waiting Time for the following processes.

PROCESS	ARRIVAL TIME	BURST TIME
1	9	5
2	7	1
3	6	7
4	1	1
5	1	5
6	8	3

- b. A disk with 1000 cylinders, numbers 0 to 999, compute the number of tracks the disk arm must move to satisfy all the request in the disk queue. Assume the last request serviced was at track 345 and the head is moving towards track 0. The queue in FIFO order contains request for the following tracks:

123,874,692,475,105,376

Perform the computation for the following scheduling algorithms:

- i) FIFO ii) SSTF

- Q.5. a. Consider 4 jobs arriving in the ready queue in the same time i.e 1. If the burst time requirement of these processes are 5,7,3,2. What is the completion time for the 3rd process? Assuming Round Robin scheduling having the time quantum of 1.
- b. What is the difference between multitasking and multiprogramming operating system? Explain.

- Q.6. a. Consider the following snapshot of a system:

	ALLOCATION	MAX	AVAILABLE
	A B C D	A B C D	A B C D
P0	0 0 1 2	0 0 1 2	1 5 2 1
P1	1 0 0 0	1 7 5 0	
P2	1 3 5 4	2 3 5 6	
P3	0 6 3 2	0 6 5 2	
P4	0 0 1 4	0 6 5 6	

Answer the following questions using the banker's algorithm:

- vi. What is the content of the matrix need?
vii. Is the system in the safe state?
viii. Provide the safe sequence of the above.

- Q.7. a. Define the process flowchart of Round Robin scheduling algorithm
- b. Consider a system with logical address space is 128M words and physical address is of 24 bits. The physical address is divided into 8K frames. What is the page size and how many pages in logical address space?

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END SEMESTER EXAMINATION, JANUARY-2018

PROGRAM : BCA THIRD SEMESTER

COURSE CODE : BCA205 COURSE TITLE : ORGANIZATIONAL BEHAVIOUR AND PERSONNEL MANAGEMENT

[Time allotted: Three hours]

[Max. Marks: 100]

Note: Attempt all Sections & Questions.

Section (A)

Q. 1. Attempt all questions.

(2 x 10 = 20)

- a. What do you mean by orientation?
- b. What do you mean by recruitment?
- c. What do you mean by perception?
- d. What is leadership?
- e. Explain the term attitude.
- f. What do you mean by personality?
- g. Role of human resource manager.
- h. What are the benefits of knowledge of subject OB for IT student?

Section (B)

Q. 2. Attempt any 5 questions.

(7 x 5 = 35)

- a. Explain the meaning of organization behaviour and its elements.
- b. Explain the objective of human resource management.
- c. Differentiate between recruitment and selection.
- d. What is job analysis? Explain the significance of job analysis.
- e. What are the disciplines which contribute to the OB field?
- f. What are the internal sources of recruitment?

Section (C)

Attempt any 3 questions.

(15 x 3 = 45)

- Q. 3. a. Define organization behaviour and its scope. (7.5)
b. Explain the selection process. (7.5)
- Q. 4. a. Discuss the steps of induction program. (7.5)
b. Explain the meaning of job specification and job description. (7.5)
- Q. 5. a. Explain the perceptual process. (7.5)
b. Is the induction program is relevant to employees? (7.5)
- Q. 6. a. What are the difference between managers and leaders? (7.5)
b. How is the human resource planning is useful to the organization? (7.5)
- Q. 7. a. Does behaviour always follow the attitude? (7.5)
b. What are the major job attitudes? (7.5)

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END SEMESTER EXAMINATION, JANUARY-2018

PROGRAM : BCA THIRD SEMESTER

COURSE CODE : BCA202

COURSE TITLE : DISCRETE MATHEMATICAL STRUCTURES

[Time allotted: Three hours]

[Max. Marks: 100]

Note: Attempt all Sections & Questions.

Section (A)

Q. 1. Attempt all questions.

(2 x 10 = 20)

- Determine the power set $P(A)$ of the set $A = \{1, 2, 3\}$.
- Consider the sets $A = \{1, 2, 3\}$ and $B = \{1, 3, 5, 7\}$. Find Cartesian product of sets A and B .
- Let P, Q and R be three finite sets. Then $|P \cup Q \cup R| = \dots\dots\dots$
- Determine the value of $\lfloor 5 \rfloor$ and $\lceil -5.5 \rceil$.
- There can be only an even number of vertices of odd degree in a graph G . (State if True/False)
- Let A be a set given by $A = \{1, 2\}$. Then how many relations are there from A to A .
- Consider the following statements p and q and then write the meaning of $\sim (p \vee q)$.
 p : It is hot day, q : The temperature is 45°C .
- What is a pendent vertex?
- Let $A = \{1, 3, 5, 7, 9, \dots\}$ be the set of odd positive integers. Check whether A is closed under addition.
- There are 10 persons called on an interview. Each one is capable to be selected for the job. How many permutations are there to select 4 persons from 10 persons?

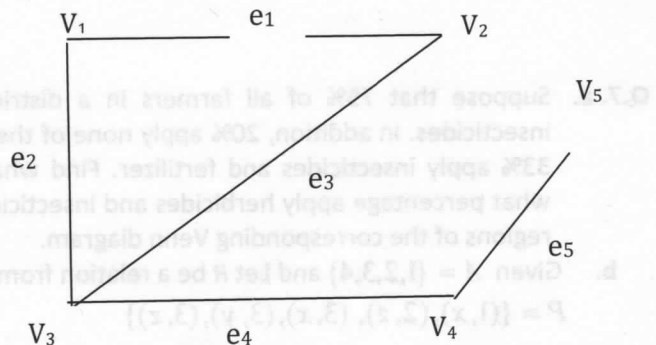
Section (B)

Q. 2. Attempt any 5 questions.

(7 x 5 = 35)

- Prove that: $(A \cup B)^c = A^c \cap B^c$.
- In a survey of 200 musicians, it was found that 40 wore gloves on the left hand and 39 wore gloves on the right hand. If 160 wore no gloves at all, how many wore a glove on only the right hand? Only the left hand? On both hands
- For the set of positive integers n , prove the following by mathematical induction
$$1.2 + 2.3 + 3.4 + \dots + n(n+1) = \frac{n(n+1)(n+2)}{3}$$
- Let $X = \{a, b, c\}$ and $f : X \rightarrow X$ be defined such that $f = \{(a, b), (b, a), (c, c)\}$, then find the following
(i) f^{-1} (ii) f^2 (iii) f^3 (iv) f^4 .
- Solve the recurrence relation $4a_n - 20a_{n-1} + 17a_{n-2} - 4a_{n-3} = 0$.
- Determine whether the following statement is a tautology, contingency or a contradiction
 $(p \wedge \sim q) \vee (\sim p \wedge q)$.
- Consider the given graph and determine the following

- Pendent vertices,
- Odd vertices,
- Even vertices,
- Incident edges,
- Adjacent vertices.



Section (C)

Attempt **any 3** questions.

(15 x 3 = 45)

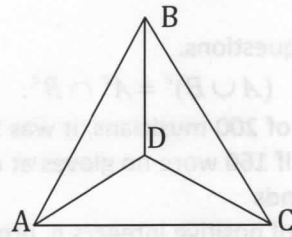
- Q.3. a.** Solve the recurrence relation $a_n - 4a_{n-1} + 4a_{n-2} = 3n + 2^n$. (9)
- b.** Find the generating function for each of the following sequence (6)
- (i) 0, 1, -2, 4, -8, ... (ii) 1, 0, 1, 0, 1, ... (iii) 5, 10, 20, 40, 80, ...

- Q.4. a.** Show that the four roots of unity namely 1, -1, i , $-i$ where $i = \sqrt{-1}$ form an abelian group with respect to multiplication. (8)
- b.** A panel has to select a president, a vice president and a secretary from the committee of five members namely Ankit, Arjit, Sonu, Monu and Nonu. (7)
- (i) In how many ways can this occur if either Sonu or Monu must be president?
 (ii) How many selections exclude Ankit or Arjit?,
 (iii) How many selections include Sonu and Monu?

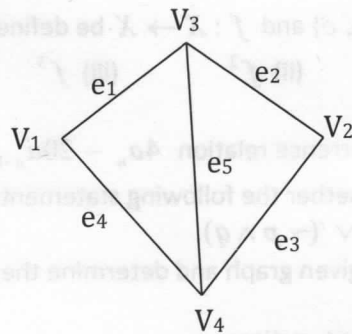
- Q.5. a.** Let x be a real number. Check the validity of following argument. (8)
- x is positive or x is negative.
 If x is positive, then $x^2 > 0$.
 If x is negative, then $x^2 > 0$.
 $\therefore x^2 > 0$.

b. Using mathematical induction, prove that, $7^n - 2^n$ is divisible by 5, n being positive integer. (7)

- Q.6. a.** Define equivalence relation and partial order relation. Consider the relation " \leq (less than equal to)" on the sets of integers. Check whether it is - (10)
- (i) an equivalence relation (ii) partial order relation. **(give proper explanation)**
- b. (i)** Find the adjacency matrix of the following graph.



(ii) Find the incidence matrix of the following graph. (2.5+2.5)



- Q.7. a.** Suppose that 75% of all farmers in a district fertilize their fields, 60% apply herbicides and 35% apply insecticides. In addition, 20% apply none of these, 30% apply all three, 56% apply herbicides and fertilizer, and 33% apply insecticides and fertilizer. Find what percentage apply herbicides and insecticides. Also find that what percentage apply herbicides and insecticides but not fertilizer. Further, fill in the correct number in every regions of the corresponding Venn diagram. (10)
- b.** Given $A = \{1,2,3,4\}$ and Let R be a relation from A to B defined as: (5)
- $P = \{(1, x), (2, z), (3, x), (3, y), (3, z)\}$
- (i) Determine the matrix of relation, (ii) find the inverse relation R^{-1} , (iii) Determine the domain and range of R .

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END SEMESTER EXAMINATION, JANUARY-2018

PROGRAM : BCA THIRD SEMESTER

COURSE CODE : BCA203

COURSE TITLE : OBJECT ORIENTED PROGRAMMING USING UML AND C++

[Time allotted: Three hours]

[Max. Marks: 100]

Note: Attempt all Sections & Questions.

Section (A)

Q. 1. Attempt all questions.

(2 x 10 = 20)

- a. What is Class?
- b. Draw the use case diagram of the vending machine.
- c. What is objects?
- d. Draw the state diagram of entry and exit activities that shows the control of a garage door opener.
- e. What do you understand by guard conditions in State Model?
- f. What is encapsulation and data hiding?
- g. Mention the name of the five operators on which we can't apply the operation overloading.
- h. Define friend function.
- i. Draw the Activity diagram for stock trade processing.
- j. Differentiate between "scenarios" and "sequence diagram".

Section (B)

Q. 2. Attempt any 5 questions.

(7 x 5 = 35)

- a. What are the differences between the Virtual Base Class and Virtual functions? Explain with the help of the Programme.
- b. Discuss about the memory allocation of an Objects.
- c. What are Constructor and Destructor? Write a programme that shows both.
- d. Draw the use case diagram for the Anganwadi.
- e. What is recursion? Write down the recursive program of Fibonacci Series.
- f. What do you understand by generalization and inheritance? What are the uses of generalizations?
- g. What is an operator polymorphism? Write down a program overloading of comparison operator < (less than).

Section (C)

Attempt any 3 questions.

(15 x 3 = 45)

Q. 3. a. What is an event? What are the different kinds of events?

(7.5)

b. Discuss about the Transitions and Conditions.

(7.5)

Q. 4. a. What is Concurrency? Discuss the Aggregation Concurrency with example.

(7.5)

b. What is Polymorphism? Write down the program for unary operator overloading.

(7.5)

Q.5. a. Draw the use case diagram for the university examination grading system.

(7.5)

b. Differentiate between the Private, Protected and Public Inheritance.

(7.5)

Q. 6. a. What are the problems with flat State Diagram? Draw the nested state diagram for Vending Machine.

(7.5)

b. What are the difference between "Do-Activities" and "Entry and Exit Activities" State Diagram.

(7.5)

Q. 7. What is Class Model? Draw the Sample Class Model of Windowing System.

(15)

Enrol. No. S R H U

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END SEMESTER EXAMINATIONS, JANUARY-2018**PROGRAM : BCA THIRD SEMESTER****COURSE CODE : BCA201****COURSE TITLE : COMPUTER ORGANIZATION AND ARCHITECTURE****[Time allotted: Three hours]****[Max. Marks: 100]****Note:** Attempt all Sections & Questions.**Section (A)**

- Q. 1.** Attempt **all** questions. (2 x 10 = 20)
- How many bits are there in one nibble?
 - Write the full form of ALE and PC.
 - What are Hazards?
 - Define Flags.
 - What is Page Fault?
 - Explain the LRU algorithm?
 - Define Mapping?
 - Give the formula for Speed up?
 - What is the role of Program Counter?
 - Define throughput.

Section (B)

- Q. 2.** Attempt **any 5** questions. (7 x 5 = 35)
- Consider the following page reference string:
2,5,4,6,2,1,5,6,2,1,3,7,6,3,2,1,2,3,6
How many page faults would occur for the algorithm OPR using four frames?
 - Explain various types of pipelings in details?
 - What is instruction cycle and discuss the process to deal with interrupts.
 - What is interrupts? Explain various types of hardware and software interrupts.
 - Consider an instruction pipeline which has a speedup factor 20 while operation with 40% efficiency. What would be number of stages in pipelings?
 - What is DMA? Explain with the help of diagram.
 - What are the major differences between processor and peripheral? Draw the connection of I/O bus to peripheral devices.

Section(C)Attempt **any 3** questions.(15 x 3 = 45)

- Q.3. a.** Define the followings.
- Optimal page replacement
 - Multilevel cache
 - Time multiplexed pins
 - Indirect addressing modes
- b.** Consider 42 bit physical address, where the size of cache memory is 2MB and the size of cache block is 256B. Compute the number of tag bits if 8-way set associate mapping is used.

- Q.4.** Consider the following 4-stage instruction pipeline where different instruction are spending different amount of time at different stage. How many clock cycles are required to complete the them and also find out the efficiency over the non-pipelined system.

	S1	S2	S3	S4
I1	2	1	2	2
I2	1	3	3	1
I3	2	2	2	2
I4	1	2	1	2

Q.5. a. Perform the following conversion.

- i. $(110110)_2 = (?)_{10}$
- ii. $(2AC)_{16} = (?)_8$
- iii. $(1694)_{10} = (?)_2$
- iv. $(125)_6 = (?)_4$
- v. $(9874)_{10} = (?)_{16}$

b. Draw the Truth Tables for 16 Functions of Two Variables.

Q.6. a. What is memory organization? Explain with the help of diagram and also discuss about the various types of memory organization.

b. A non-pipeline system takes 50 ns to process a task. The same tasks can be processed in a 9 stages pipeline with the clock cycle of 10 ns. Determine the speedup ratio of pipeline for the 100 task.

Q.7. a. What is memory mapping technique? Define direct mapping and associative memory techniques.

b. What do you mean by addressing modes? Explain various addressing modes with the help of examples.

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Section (B)

Section (C)

11	2	1	2	2
12	1	3	3	1
13	2	2	2	2
14	1	2	2	1

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END SEMESTER EXAMINATION, JANUARY-2018

PROGRAM : BCA- FIFTH SEMESTER/ B.TECH-VII SEMESTER (ME)

COURSE CODE : BCA309/GES403

COURSE TITLE : DISASTER MANAGEMENT

[Time allotted: Two hours]

[Max. Marks: 50]

Note: Attempt all Sections & Questions.

Section (A)

Q. 1. Attempt all questions.

(1 x 10 = 10)

- a. Differentiate between Rehabilitation and Reconstruction.
- b. Provide two examples for preparedness in forest fire.
- c. Write the name of various components of Disaster Management.
- d. Write the name of two major disaster events related with water.
- e. Uttarakhand state is prone to which disasters?
- f. Define modern hazards.
- g. Define contamination.
- h. What is the reason of the goiter & anemia illness?
- i. What is acid rain? List the name of the air pollutant responsible for acid rain.
- j. List the different gases involved in anaerobic decomposition.

Section (B)

Q. 2. Attempt any 4 questions.

(4 x 5 = 20)

- a. Why there is a need to provide psycho-socio assistance to a disaster victim?
- b. What are the necessary steps to be taken to avoid dangerous epidemics after a flood disaster?
- c. How capacity and vulnerability can affect disaster risk of any area?
- d. What is hydrological cycle? Define all the components/ parts with the help of a sketch.
- e. Write short note on biological disasters.
- f. What are the examples of primary & secondary air pollutant? Write at least two examples of each.

Section (C)

Attempt any 2 questions.

(10 x 2 = 20)

- Q. 3.**
 - a. Define Community Based Disaster Risk Reduction (CBDRR). Write about the prime local actors in CBDRR.
 - b. Write a detail note on 'Role of non-governmental organizations (NGOs) in community based disaster management plan'.
- Q. 4.**
 - a. What is the cause for Earthquakes? How they are measured? Which parts of India are more vulnerable for frequent earthquakes?
 - b. Describe river system of India. List any four river region/system of India.
- Q. 5.**
 - a. Discuss structural and non-structural mitigation measures for disasters.
- Q. 6.**
 - b. "Automobile pollution is a modern disaster". Justify with examples.

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END SEMESTER EXAMINATION, JANUARY-2018

PROGRAM : BCA FIFTH SEMESTER

COURSE CODE : BCA304 **COURSE TITLE : OPTIMIZATION TECHNIQUES**

[Max. Marks: 100]

[Time allotted: Three hours]

Note: Attempt all Sections & Questions.

Section (A)

(2×10 = 20)

- Q. 1. Attempt all parts of this question.
- What is meant by "Degeneracy" in the solution of a linear programming problem?
 - What is the role of artificial variables in the Simplex method?
 - What is meant by "Assignment model"?
 - Find the optimal assignments for the following problem:

		Subordinates			
		A	B	C	D
Tasks	K	7	15	6	0
	L	0	15	1	13
	M	23	4	3	0
	N	9	16	14	0

- e. Solve the following 2-person zero-sum game by saddle point:

		Player B			
		-5	5	0	7
Player A	2	2	6	1	8
	-4	-4	0	1	-3

- Give two differences between CPM and PERT.
- What are common errors in "Drawing Networks"?
- Define "Maximum Path Problem" in network analysis.
- Which are major characteristics of Queuing System?
- Define Inventory Control.

Section (B)

(7×5 = 35)

- Q. 2. Attempt any 5 parts of this questions.
- Using graphical method, solve the following linear programming problem:

Minimize $z = 3x_1 + 5x_2$, subject to the boundary conditions :

$x_1 + 5x_2 \leq 2000, x_1 + x_2 \leq 1500, x_2 \leq 600, x_1, x_2 \geq 0.$

- Solve the following linear programming problem by Simplex method:

Maximize $z = 3x_1 + 2x_2 + 5x_3,$

subject to the boundary conditions :

$x_1 + 2x_2 + x_3 \leq 430, 3x_1 + 2x_3 \leq 460, x_1 + 4x_2 \leq 420$

and $x_1, x_2, x_3 \geq 0.$

- Solve the game whose pay-off matrix is given by:

		B		
		I	II	III
A	I	5	0	-10
	II	10	6	2
	III	20	15	10

- d. There are five jobs, each of which must go through two machines A and B in order AB . Processing times are given in table below:

Job	Processing time (hours)				
	1	2	3	4	5
Time for A	5	1	9	3	10
Time for B	2	6	7	8	4

- e. Formulate the following as linear programming problem:

A used car dealer wishes to stock-up his lot to maximize his profit. He can select cars A, B and C with purchase prices of Rs. 5000, Rs. 7000 and Rs. 8000 respectively. These can be sold at Rs. 6000, Rs. 8000 and Rs. 10500 respectively.

For each car type, the probabilities of sale are:

Type of car:	A	B	C
Probability of sale in 90 days:	0.7	0.8	0.6

For every two of B, he should buy one car of type A or C. If he has Rs. 1,00,000 to invest what should he buy to maximize his expected gain.

- f. Define the following with suitable examples:

- i. feasible solution ii. basic solution iii. degeneracy of the solution

- g. Find the initial basic feasible solution of the problem:

Warehouse → Factory ↓	W ₁	W ₂	W ₃	W ₄	Factory's capacity
F ₁	19	30	50	10	6
F ₂	70	30	40	60	8
F ₃	40	8	8	70	20
Warehouses' Requirement	5	8	7	14	34

Section (C)

Attempt any 3 questions.

- Q. 3. a. Use two-phase simplex method to solve the problem:

$$\text{Min } z = x_1 - 2x_2 - 3x_3,$$

subject to the boundary constraints:

$$-2x_1 + x_2 + 3x_3 = 2, \quad 2x_1 + 3x_2 + 4x_3 = 1$$

$$\text{and } x_1, x_2, x_3 \geq 0.$$

(15 x 3=45)

- b. Explain the difference between a transportation problem and an assignment problem

- Q. 4. a. Solve by using Big-M method, the following LPP

$$\text{Min } z = -2x_1 - x_2,$$

subject to the boundary constraints:

$$3x_1 + x_2 = 3, \quad 4x_1 + 3x_2 \geq 6, \quad x_1 + 2x_2 \leq 4 \quad \text{and } x_1, x_2 \geq 0.$$

- b. Write the transportation algorithm for minimization the problem (MODI METHOD)

Q. 5. a. Solve the following (2×3) game graphically:

		B		
		I	II	III
A	I	3	3	-7
	II	-3	0	-6

b. Consider the following (2×2) game:

$$\begin{pmatrix} 4 & 7 \\ 6 & 5 \end{pmatrix}$$

- i. Does it have a saddle point?
- ii. Is it correct to state that the value of game, G will be $5 < G < 6$?
- iii. Determine the frequency of optimum strategies by matrix oddment method and find the value of game. (10)

Q. 6. a. A project has the following activities and other characteristics

Activity	Preceding Activity	Optimistic Time (a)	Pessimistic Time (m)	Most likely Time (b)
A	-	4	7	16
B	-	1	5	15
C	A	6	12	30
D	A	2	5	8
E	C	5	11	17
F	D	3	6	15
G	B	3	9	27
H	E, F	1	4	7
I	G	4	19	28

- i) Draw the network diagram for the project.
- ii) Identify the critical path.
- iii) Prepare the activity schedule for the project.

b. Explain the processing of $n - jobs$ through three machines.

Q. 7. a. Use Graphical method to minimize the time needed to process the following jobs.

Job 1	Sequences of machines time	A	B	C	D	E
		2	3	4	6	2
Job 2	Sequences of machines time	C	A	D	E	B
		4	5	3	2	6

b. Describe the "Generalization of $M/M/1 : (\infty / FIFO)$ Model."

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END SEMESTER EXAMINATION, JANUARY-2018

PROGRAM : BCA FIFTH SEMESTER

COURSE CODE : BCA305

COURSE TITLE : WEB TECHNOLOGY

[Time allotted: Three hours]

[Max. Marks: 100]

Note: Attempt all Sections & Questions.

Section (A)

Q. 1. Attempt all questions.

(2 x 10 = 20)

- a. Write down the syntax of HTTP request and response method.
- b. What are the several protocols governing on the web?
- c. Explain the hierarchy of HTML document.
- d. What is difference between website and web service?
- e. What is the difference between undefined and null value in Java Script?
- f. What is the syntax of HTML element?
- g. What are the various popup boxes that can be used in Java Script?
- h. Can SMTP be used as transfer protocol for Web pages?
- i. List the rules used for writing XML.
- j. Can we specify file transfer in a Web page? Explain with the help of suitable example.

Section (B)

Q. 2. Attempt any 5 questions.

(7 x 5 = 35)

- a. Create an HTML file for calculator using Java Script.
- b. What is AJAX? What is XMLHttpRequest? Explain with suitable example.
- c. Explain the term Simple API for XML(SAX) with suitable diagram.
- d. What is XML DTD? What is the advantage of having a DTD for an XML document?
- e. How SOAP is relate to XML? Justify.
- f. Write the XML code for displaying the detailed catalogue of any five books that you have referred in this semester.
- g. Describe the differences between XML and HTML. Briefly explain the importance of DOM.

Section (C)

Attempt any 3 questions.

(15 x 3 = 45)

Q. 3. Write short notes on the following:

(i) AJAX

(ii) Web Service Architecture

(iii) CORBA

- Q. 4.** What do you mean by SOAP? What are the various elements of SOAP? Write a code to show the manner in which SOAP handles responses.
- Q. 5.** Explain the importance of UDDI and WSDL with respect to web services. How they are related to each other?
- Q. 6.** What do you understand by recommender systems? What are the various classification approaches that most of the recommender systems use? Explain any two in detail. What are the challenges with recommender systems?
- Q. 7.** What are the applications of RSS? How RSS works? Explain in detail. Which element is used to describe the RSS feed? Write a code to add a text input field to the RSS.

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END SEMESTER EXAMINATION, JANUARY-2018

PROGRAM : BCA

FIFTH SEMESTER

COURSE CODE : BCA302

COURSE TITLE : PROGRAMMING IN VB.NET

[Time allotted: Three hours]

[Max. Marks: 100]

Note: Attempt all Sections & Questions.

Section (A)

- Q. 1.** Attempt all questions. **(2 x 10 = 20)**
- a. What is manifest in .Net Frame work?
 - b. What is preserve Keyword and why it is used?
 - c. What is the use of option explicit?
 - d. How to create a constant in VB.Net?
 - e. In how many ways a function can return a value in VB.Net?
 - f. What is CLR and why it is needed?
 - g. Write down the code to clear the textbox at run time.
 - h. What do you mean by Bad User Interface?
 - i. What is Typecasting in VB.Net?
 - j. What is managed memory in Vb.Net?

Section (B)

- Q. 2.** Attempt any 5 questions. **(7 x 5 = 35)**
- a. Discuss access modifiers in VB.Net.
 - b. Write about datagrid control and its members. Write a code to implement it.
 - c. What is jagged array? Write a program to create it in VB.Net.
 - d. Explain properties, methods and event, also discuss the relationships among them.
 - e. Explain IDE with all its features.
 - f. Differentiate between byref and byval, also explain default argument.
 - g. What is sub routine, also write a sub routine for bubble sorting.

Section (C)

- Attempt any 3 questions. **(15 x 3 = 45)**
- Q.3.** a. Write a code to display data from the database in a textbox by using oledb connection object? (09)
b. What do you mean by solution explorer, what is the role of it in VB.Net? (06)
- Q.4.** a. What do you mean by User Interface Design, write important factors which are used to create an UID. (08)
b. Design and develop an application to add , multiply and substract two matrices of 2x2. (07)
- Q.5.** a. Explain array with examples in VB.Net (08)
b. Differentiate between inputbox and messagebox, also explain SystemModal DialogBox with example. (07)
- Q.6.** a. Explain Modules with example. (09)
b. What do you mean by ADO.net, explain it with example? (06)
- Q.7.** a. Explain the following: (2x5=10)
i. DataAdapter ii. DataSet iii. Oledbcommand iv. JIT v. BCL
- b. Answer the following:- (1x5=5)
- i. Which access modifier specifies that an argument is passed by reference?
 - ii. Which statement terminates the loop or select case statement and transfers execution to the statement immediately following the loop or select case?
 - iii. Which of the following access modifier specifies that an argument is passed in such a way that the called procedure or property cannot change the value of a variable underlying the argument in the calling code?
 - iv. Write the command to print current date & time.
 - v. Write the command to close the application.

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END SEMESTER EXAMINATIONS, JANUARY-2018
PROGRAM:BCA FIFTH SEMESTER

COURSE CODE : BCA301**COURSE TITLE : E-COMMERCE****[Time allotted: Three hours]****[Max. Marks: 100]****Note:** Attempt all Sections & Questions.

Section (A)

Q.1. Attempt all questions.**(2 x 10 = 20)**

- a. What is an electronic market?
- b. What is EDI?
- c. List any two applications of C2C e-Commerce.
- d. What are read-clicks? What is their use?
- e. What do you mean by e-Check?
- f. Describe transaction security.
- g. Explain Diffie-Hellman key exchange algorithm.
- h. Explain briefly e-Governance.
- i. List any two B2B e-Commerce sites.
- j. What are the goals of market research?

Section (B)

Q2. Attempt any 5 questions.**(7 x 5 = 35)**

- a. What is e-Shopping? What are the advantages and disadvantages of e-Shopping?
- b. What is e-Commerce? Differentiate between e-Commerce & e-Business.
- c. What is supply chain management? Discuss how it is advantageous to EC.
- d. What is encryption? Explain Caesar cipher with example.
- e. Discuss at least two e-Marketing strategies in detail.
- f. Compare and contrast electronic data interchange with electronic mail.
- g. Perform encryption and decryption using the RSA algorithm for the following:
 $p=3; q=11; e=7; M=5$

Section (C)

Attempt any 3 questions.

(15 x 3 = 45)

- Q.3.**
 - a. What do you mean by integrity of a message? Describe a technique to ensure integrity of a message. (08)
 - b. How is paper based purchasing is different from EDI based purchasing? Explain in detail. (07)
- Q.4.**
 - a. Discuss the security requirements of Internet and E-commerce applications and how these requirements are fulfilled by various hardware and software systems (07)
 - b. Write about the major methods of Internet advertisement and discuss how product comparison process can be used as an opportunity of advertisement. (08)
- Q.5.**
 - a. Define m-Commerce. How it is different from e-Commerce. List various applications of m-Commerce. (07)
 - b. Write about the security services that are to be offered in e-Payment systems. Discuss any three e-Payment systems in detail. (08)
- Q.6.**
 - a. Why customer relationship management has assumed such high importance in e-Enterprise? (08)
 - b. What is WAP? Explain the architecture of WAP in detail. (07)
- Q.7.**
 - a. Explain B2C e-commerce of a customer reserving airline tickets from home or workplace. (7.5)
 - b. What are the legal requirements in e-Commerce? What do you mean by smart card? (7.5)

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END SEMESTER EXAMINATIONS, JANUARY 2018
PROGRAM : BCA FIFTH SEMESTER

COURSE CODE : BCA303

COURSE TITLE : MANAGEMENT INFORMATION SYSTEM

[Time allotted: Three hours]

[Max. Marks: 100]

Note: Attempt all Sections & Questions.

Section (A)

- Q. 1.** Attempt all questions. **(2 x 10 = 20)**
- a. Define MIS.
 - b. Explain in brief the role of Information technology with respect to Supply Chain Management?
 - c. Write down the characteristics of an information system.
 - d. What is data cube?
 - e. What is semantic network?
 - f. What is Bluetooth?
 - g. What are the different types of DBMS?
 - h. What is data mining?
 - i. What is the difference between action and non-action information?
 - j. Define Business Model.

Section (B)

- Q. 2.** Attempt any 5 questions. **(7 x 5 = 35)**
- a. Differentiate between DSS and GDSS.
 - b. Discuss the TPS with the help of a diagram.
 - c. What are the pros and cons of OODBMS?
 - d. Differentiate between OLAP and OLTP.
 - e. Explain the working of Wi-MAX.
 - f. What are the characteristic features of information?
 - g. Describe the advantages of an ERP.

Section (C)

- (15 x 3 = 45)**
- Attempt any 3 questions.
- Q. 3.** a. Explain E-commerce, E-collaboration, E-business and E-communication. (7)
b. Explain star, snowflake and fact constellation schema. (8)
- Q. 4.** a. What is meant by SCM? Discuss the outcome and impact of SCM at different levels. (8)
b. What do you understand by planning? What are the dimensions of planning? (7)
- Q. 5.** a. How the data is stored in the data warehouse? Why the data need to be preprocessed before storing the data into the warehouse. (8)
b. What is TPS? Explain the working with the help of a diagram. (7)
- Q. 6.** a. Differentiate the following: (5*3)
- i. LAN, MAN, WAN
 - ii. Internet, Intranet, Extranet
 - iii. Bluetooth and Wi-Fi
- Q. 7.** a. What are the advantages of RTE? (6)
b. Explain the following approaches to CRM: (9)
- i. Data Driven CRM
 - ii. Process Driven CRM
 - iii. Analytical CRM
