BACHELOR OF COMPUTER APPLICATIONS (CBCS - 2018 COURSE)
B.C.A. Sem-I :SUMMER- 2022
SUBJECT : FUNDAMENTALS OF INFORMATION TECHNOLOGY

Day : Monday   Time : 02:00 PM-05:00 PM

Date : 6/6/2022   **S-18751-2022**   Max. Marks : 60

N.B.:
1) Q. 4 from section I is COMPULSORY.
2) Solve ANY TWO from Q. 1 to Q. 3 in Section I.
3) Solve ANY TWO from Q. 5 to Q. 7 in Section II.
4) All questions CARRY EQUAL marks.
5) Answer to Both sections should be written in SAME answer book.

SECTION - I

Q.1) Answer the following: (6 Marks X 2 = 12)
- a) Explain detail features of third generation and fourth generations of computers.
- b) What is Gates? Explain with proper example AND & OR gates.

Q.2) Answer the following: (6 Marks X 2 = 12)
- a) What is inputting? Explain in detail pointing devices as an input devices.
- b) What is purpose of main memory in a computer? Explain with proper example.

Q.3) Answer the following: (12 Marks X 1 = 12)
What is operating system? Explain in detail functions of operating system.

Q.4) Write short notes on the following: Attempt ANY TWO (6 Marks X 2 = 12)
- a) Types of Computer
- b) Compiler
- c) Data storage hierarchy

SECTION - II

Q.5) Answer the following: (12 Marks X 1 = 12)
Convert the following
1) $(111010)_2 = (?)_{10}$
2) $(C10B)_{16} = (?)_{10}$
3) $(333)_8 = (?)_2$
4) $(1480)_{10} = (?)_2$

Q.6) Answer the following: (12 Marks X 1 = 12)
Bharati Sahakari Bank has more than 50,000 account holders. One of the bank's major challenges was recognizing the need to stay current with account holders by providing an online application. With about 500000 transactions processed each year, Bharati bank needed an online application system to keep their account holders ahead of the pack. In 2002 the bank purchased an application software BMS. Since then the bank has become enthusiast for software and has utilized the solution to its fullest.

Using the BMS the bank can communicate status update to account holders besides providing them opportunities for online status of account, money transfer, bill payments, feedback and automated e-mail response system. With success of switching from paper based application to solely accepting online, the bank has seen the positive effect on number of new account holders and deposits.

Discuss on:
- i.) Discuss the role of application software in online transactions of bank.
- ii.) Have you ever done any online transaction with bank? Discuss your experience describing the pros and cons of online systems of bank.

Q.7) Answer the following: (12 Marks X 1 = 12)
Write an algorithm and draw a flowchart for display given 10 numbers in descending order.

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BACHELOR OF COMPUTER APPLICATIONS (CBCS - 2018 COURSE)
B.C.A. Sem-I :SUMMER- 2022
SUBJECT : ALGORITHM & PROGRAM DESIGN

Day : Wednesday

Date : 8/6/2022

S-18752-2022

Time : 02:00 PM-05:00 PM

Max. Marks : 60

N.B.:
1) Q4 from Section I is COMPULSORY.
2) Answer ANY TWO questions from Q 1, 2, 3 in Section I.
3) Answer ANY TWO questions from Q 5, 6, 7 in Section II.
4) All question CARRY EQUAL marks.
5) Answers to Both the sections should be written in SAME answer book.
6) Draw a labeled diagram WHEREVER necessary.

SECTION - I

Q.1) Answer the following: (6 Marks X 2 = 12)
- a) Write an Algorithm to find the product of 5 numbers and trace it.
- b) What are the basic Principles of Structured Programming?

Q.2) Answer the following: (6 Marks X 2 = 12)
- a) Design an algorithm for given set of n students examination marks (in the range 0 to 100) make a count of the number of students that passed the examination. A pass is awarded for all the marks of 50 and above.
- b) What is Fibonacci series explain and design an algorithm to find nth term of the series?

Q.3) Explain the following: (6 Marks X 2 = 12)
- a) Write an algorithm to find smallest number from the list of 10 numbers.
- b) Write an algorithm to find prime factor of a number.

Q.4) Write short notes on the following: Attempt ANY THREE (4 Marks X 3 = 12)
- a) Algorithm
- b) Sequencing in control structures
- c) Factorial.
- d) Find the smallest between three given numbers
- e) Selection sort.

SECTION - II

Q.5) Answer the following: (6 Marks X 2 = 12)
- a) Draw a flowchart to find greatest between three numbers.
- b) What is loop? Explain different types of loops.

Q.6) Answer the following: (6 Marks X 2 = 12)
- a) Design an algorithm to generate the first n terms of the sequence
  1 -1 1 -1 1 -1 . . . .
- b) Write an algorithm to evaluate the polynomial equation formula is $3x^2+5x+2=0$.

Q.7) Explain the following: (6 Marks X 2 = 12)
- a) Design an algorithm to convert decimal number $(25)_{10}$ to binary number.
- b) Describe an algorithm to sort an array in descending order using insertion sort.

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BACHELOR OF COMPUTER APPLICATIONS (CBCS - 2018 COURSE)
B.C.A. Sem-I :SUMMER- 2022
SUBJECT : C PROGRAMMING-I

Day : Friday

Date : 10/6/2022 **S-18753-2022**

Time : 02:00 PM-05:00 PM

Max. Marks : 60

N.B.:
1) Q 4 from Section I is COMPULSORY.
2) Answer ANY TWO questions from Q 1, 2, 3 in Section I.
3) Answer ANY TWO questions from Q 5, 6, 7 in Section II.
4) All question CARRY EQUAL marks.
5) Answers to Both the sections to be written in SAME answer book.
6) Draw a labeled diagram WHEREVER necessary.

SECTION - I

Q.1) Answer the following: (6 Marks X 2 = 12)
   a)   Explain following input and output functions with suitable example: 1) getchar() 2) putchar()
   b)   How the do-while loop varies from the while loop?

Q.2) Answer the following: (6 Marks X 2 = 12)
   a)   What is recursion? Write a recursive function in C to display factorial of given number.
   b)   Define operator. Explain arithmetic and logical operators in C.

Q.3) Explain the following: (6 Marks X 2 = 12)
   a)   Explain the concept of array of structure with appropriate example.
   b)   What is pointer? Explain various arithmetic operations can be performed on pointer with example.

Q.4) Write short notes on the following: Attempt ANY THREE (4 Marks X 3 = 12)
   a)   Implicit and explicit type conversion
   b)   switch statement
   c)   A concept of Call by value
   d)   Standard library functions of strings
   e)   Static storage class

SECTION - II

Q.5) Answer the following: (12 Marks X 1 = 12)
   a)   Write a C program to read and display the information of 10 students in the class. Then edit the details of particular student and redisplay the entire information.

Q.6) Answer the following: (6 Marks X 2 = 12)
   a)   Write a function Factorial() to find factorial of given number.
   b)   Write a program in C to read n number of values in an array and display the sum of all elements.

Q.7) Explain the following: (6 Marks X 2 = 12)
   a)   Write a C program to print following Floyd's triangle.

      1
      2 3
      4 5 6
      7 8 9 10
   b)   Write a C program to read and print student details using structure pointer.

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ACHELOR OF COMPUTER APPLICATIONS (CBCS - 2018 COURSE)
B.C.A. Sem-I : : SUMMER - 2022
SUBJECT : BUSINESS ORGANIZATION SYSTEM

Day : Monday   Time : 02:00 PM-05:00 PM
Date : 13-06-2022   **S-18754-2022**   Max. Marks : 60

N.B.:
1) Q 4 from Section I is COMPULSORY.
2) Answer ANY TWO questions from Q 1, 2, 3 in Section I.
3) Answer ANY TWO questions from Q 5, 6, 7 in Section II.
4) All question CARRY EQUAL marks.
5) Answers to Both the sections should be written in SAME answer book.
6) Draw a labeled diagram WHEREVER necessary.

SECTION - I

Q.1) Answer the following: (6 Marks X 2 = 12)
   a) What is Business? State in detail objectives of Business.
   b) What do you mean by Industry? Discuss evolution of industry in detail.

Q.2) Answer the following: (6 Marks X 2 = 12)
   a) Discuss in detail, merits and demerits of Partnership business firm.
   b) What do you understand by a Memorandum of Association? How does it differ from Articles of Association?

Q.3) Explain the following: (6 Marks X 2 = 12)
   a) Discuss in detail factors to be considered while starting a new business enterprise.
   b) Differentiate between Wholesale trade and Retail trade with suitable examples.

Q.4) Write short notes on the following: Attempt ANY THREE (4 Marks X 3 = 12)
   a) Scope of Business
   b) Public Enterprises
   c) Commencement of Business
   d) Objectives of Small and Medium Enterprises.
   e) Franchising

SECTION - II

Q.5) Answer the following: (6 Marks X 2 = 12)
   a) 'Business environment is dynamic in nature.' Discuss with appropriate example.
   b) State in detail role and importance of support services to business organization.

Q.6) Answer the following: (6 Marks X 2 = 12)
   a) Discuss the factors that affect the choice of a form of Business organization.
   b) What is company formation? State stages in Company formation.

Q.7) Explain the following: (6 Marks X 2 = 12)
   a) How chambers of commerce and industry in India does helps in protecting the right of management?
   b) Explain merits and demerits of any recent two mergers either in India or abroad.

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BACHELOR OF COMPUTER APPLICATIONS (CBCS - 2018 COURSE)
B.C.A. Sem-I :SUMMER- 2022
SUBJECT : BUSINESS MATHEMATICS

Day : Wednesday

Date : 15-06-2022   **S-18755-2022**   Time : 02:00 PM-05:00 PM

Max. Marks : 60

N.B.:

1) Q.4 from Section-I is COMPULSORY.
2) Answer ANY TWO questions from Q. 1, 2, 3 in Section-I.
3) Answer ANY TWO questions from Q. 5, 6, 7 in Section-II.
4) All question CARRY EQUAL marks.
5) Answers to Both the sections to be written in SAME answer book.
6) Draw a labeled diagram WHEREVER necessary.

SECTION - I

Q.1) Answer the following: (6 Marks X 2 = 12)

  a) If A = {1, 2 ,3} then write down all possible subsets of A.

  b) If $f: R \to R$ given by $f(x) = 3x - 4$. show that f is an onto function.

Q.2) Answer the following: (6 Marks X 2 = 12)

  a) Prepare the truth table for $(p \to q) \leftrightarrow (\sim q \to \sim p)$

  b) Using Adjoint method find the inverse of the matrix $A = \begin{bmatrix} 3 & 2 & 4 \\ 1 & 4 & 1 \\ 2 & 6 & 3 \end{bmatrix}$

Q.3) Explain the following: (6 Marks X 2 = 12)

  a) There are 10 questions in an exam. In how many ways can a person attempt at least one question?

  b) The probability that A can solve a problem is 0.7 and the probability that B can solve that problem is 0.6. Considering that these two events are independent, find the probability that the problem gets solved by either of them.

Q.4) Write short notes on the following: Attempt ANY THREE (4 Marks X 3 = 12)

  a) Subset and Proper Subset

  b) Composite Function

  c) Inverse of a Matrix

  d) Product rule Principle

  e) Bayes Theorem

SECTION - II

Q.5) Answer the following: (6 Marks X 2 = 12)

  a) Of the total of 200 students appearing in an examination, 140 passed in mathematics and 100 passed in statistics. If 40 of them failed in both Mathematics and statistics. Find the percentage of students who passed in both by using Venn diagram.

  b) Let $f: R \to R$ be given by $f(x) = 7 x - 5$, for all $x \in R$. Find $f^{-1} \cdot f o f^{-1}, f^{-1} o f$

Q.6) Answer the following: (6 Marks X 2 = 12)

a) Show that the following statement is a Tautology or a Contradiction

$(p \leftrightarrow q) \wedge (p \rightarrow \sim q)$

b) Find A B and B A (if exist), where $A = \begin{bmatrix} 2 & -1 \\ 3 & 4 \end{bmatrix}$ and $B = \begin{bmatrix} 5 & -1 & 2 \\ 0 & 7 & 6 \end{bmatrix}$

Q.7) Explain the following: (6 Marks X 2 = 12)

a) In how many different ways can the letters of the word 'OPTICAL' be arranged so that the vowels always come together?

b) In an electronics laboratory, there are identically looking capacitors of three makes A_1, A_2 and A_3 in the ratio 2:3:4. It is known that 1% of A_1, 1.5% of A_2 and 2% of A_3 are defective. What percentage of capacitors in the laboratory are defective? If a capacitor picked at defective is found to be defective, what is the probability it is of make A_3?

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