

B.C.A. SEM-I (CBCS 2018 Course) : WINTER - 2018
SUBJECT: FUNDAMENTALS OF INFORMATION TECHNOLOGY

Day: Wednesday
Date: 14/11/2018

W-2018-1819

Time: 02.00 PM TO 05.00 PM
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 to be written in SEPARATE answer book.

SECTION - I

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

- a) Why computer is an integral part of any organization? Explain in detail.
- b) What is Gates? explain with proper example AND & OR gates.

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

- a) What is output? Explain various output devices in detail.
- b) Explain with example various secondary storage devices.

Q.3) Answer the following: (12 Marks X 1 = 12)

Explain machine language with its advantages and disadvantages.

Q.4) Write short notes on the following: Attempt ANY TWO (6 Marks X 2 = 12)

- a) 2's Complements
- b) Graphics Software
- c) WAN

SECTION - II

Q.5) Answer the following: (12 Marks X 1 = 12)

Convert the following (Each sum carries 3 marks)

- 1) $(101010)_2 = (?)_{16}$
- 2) $(AB10)_{16} = (?)_{10}$
- 3) $(777)_8 = (?)_2$
- 4) $(1024)_{10} = (?)_2$

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

How to create graphs using MS Excel? Explain with proper example.

Q.7) Answer the following: (12 Marks X 1 = 12)

Write an algorithm and draw a flowchart for accept numbers from console and show factorial of given numbers.

B.C.A. SEM-I (CBCS 2018 Course) : WINTER - 2018

SUBJECT: ALGORITHM AND PROGRAM DESIGN

Day: Friday
Date: 16/11/2018

W-2018-1820

Time: 02.00 PM TO 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 to be written in SEPARATE answer books
- 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 is the difference between Structured programming and Procedure oriented programming?

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

- a) Write an algorithm for given variables of integer type 15 and 20, exchange their values without using third temporary variable and explain.
- b) Analyze and design an algorithm to find sum of first n factorials.

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

- a) Design an algorithm to find nth root of a given number.
- b) Given a randomly ordered array of n elements, partition the elements into two subsets such that elements $< x$ are in one subset and elements $> x$ are in other subset, design an algorithm for given condition.

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

- a) Advantage of algorithm
- b) Iterative construct in control structure
- c) Analysis the counting problem with an example
- d) Algorithm for Prime number
- e) Write an algorithm to find square root of 4
- f) Selection sort.

SECTION - II

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

- a) What is the difference between Algorithm and Pseudo code?
- b) What are the benefits of Structured programming?

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

- a) Design an algorithm to generate the first n terms of the sequence
1 2 4 8 16 32.... without using multiplications.
- b) Write an algorithm and explain to compute factorial of 5.

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

- a) Design an algorithm to convert decimal number $(55)_{10}$ to octal number.
- b) Describe an algorithm to sort an array in descending order using insertion sort.

B.C.A. SEM-I (CBCS 2018 Course) : WINTER - 2018

SUBJECT : C PROGRAMMING – I

Day : Monday
Date : 19/11/2018

W-2018-1821

Time : 02.00 PM TO 05.00 PM
Max. Marks : 60

N. B. :

- 1) **Q. NO. 4** from Section - I is **COMPULSORY**.
 - 2) Answer **ANY TWO** questions from **Q. NO.1, 2, 3** in Section – I and answer **ANY TWO** questions from **Q. NO.5, 6, 7** in Section – II.
 - 3) Figures to the right indicate **FULL** marks.
 - 4) Answers to both the sections should be written in **SEPARATE** answer books.
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SECTION – I

- Q. 1** a) Explain relational and logical operators in detail. (06)
b) Which are branching statement in C? Explain else-if ladder statement in detail. (06)
- Q. 2** Explain various storage classes available in C. (12)
- Q. 3** a) Define an array? Explain two dimensional array with suitable example. (06)
b) Describe with example the way of declaring structure variable and accessing structure members. (06)
- Q. 4** Write short notes on **ANY THREE** of the following: (12)
a) Jump Statements in C
b) Do-while loop-an exit control iteration statement
c) Functions in c
d) Dynamic memory allocation

SECTION – II

- Q. 5** a) Write a C program to input a number from user and find reverse of the given number. (06)
b) Write a C program to print all perfect numbers between 1 to n. (06)
- Q. 6** Write a menu driven program in C to calculate square, cube and square root of given number. (12)
- Q. 7** Define pointer. Explain the concept of array pointer with appropriate example. (12)

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B.C.A. SEM-I (CBCS 2018 Course) : WINTER - 2018

SUBJECT : BUSINESS ORGANIZATION SYSTEM

Day : Thursday
Date : 22/11/2018

W-2018-1822

Time : 02.00 PM TO 05.00 PM
Max. Marks : 60

N.B.

- 1) Attempt **ANY THREE** questions from Section – I and **ANY TWO** questions from Section - II.
- 2) Figures to the **RIGHT** indicate **FULL** marks.
- 3) Answer to both the sections should be written in separate answer books.

SECTION – I

- Q.1** For starting a new business enterprise entrepreneur should consider suppliers, technology, location, human resource and finance. Why? (12)
- Q.2** What are the stages in formation and incorporation of a company? (12)
- Q.3** What is joint stock company? State the merits and demerits of sole proprietorship. (12)
- Q.4** Define business. Discuss in detail nature, scope and characteristics of business. (12)
- Q.5** Write short notes on **ANY THREE** of the following : (12)
- a) Beginning and Development of Commerce
 - b) Evolution of Industry
 - c) Cooperative Organisation
 - d) Franchising
 - e) Role of Support Organizations

SECTION – II

- Q.6** Why government of India launched 'Make in India' concept? How it is beneficial for Indian economic development? (12)
- Q.7** 'Too much documentations and government policies affects adversely the formation and incorporation of new enterprises in India.' Do you agree? Justify. (12)
- Q.8** 'Mergers and Acquisitions plays very important role in economic development of any country.' Comment with suitable example. (12)

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B.C.A. SEM-I (CBCS 2018 Course) : WINTER - 2018

SUBJECT: BUSINESS MATHEMATICS

Day: Monday
Date: 26/11/2018

W-2018-1823

Time: 02.00 PM TO 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 SEPARATE answer books.
- 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) Let $f: \mathbb{R} \rightarrow \mathbb{R}$ and $g: \mathbb{R} \rightarrow \mathbb{R}$ be given by $f(x) = x^3$ and $g(x) = x^2 - 1$.
Find (i) $f \circ g$ (ii) $g \circ f$

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

- a) Prepare the truth table for $(\sim p) \leftrightarrow (q \leftrightarrow r)$
- b) Using cofactor method find the inverse of the matrix $A = \begin{bmatrix} 6 & 2 & 2 \\ -3 & 7 & 1 \\ 3 & 5 & -1 \end{bmatrix}$

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

- a) How many 4-digit numbers that are divisible by 10 can be formed from the numbers 3, 5, 7, 8, 9, 0 such that no number repeats?
- b) In a class with $\frac{3}{5}$ women and $\frac{2}{5}$ men, 25% of the women are business majors. Find the probability that a student chosen from the class at random is a female business major.

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

- a) Operations on the sets
- b) One-to-One and Onto Functions
- c) Venn diagram
- d) Permutations with Repetitions
- e) Cardinality of set

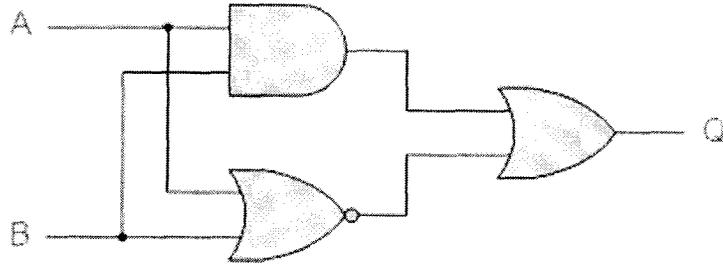
SECTION - II

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

- a) Prove the following identity for three sets.
$$X \cap (Y \cup Z) = (X \cap Y) \cup (X \cap Z)$$
- b) Show that $f: \mathbb{R} \rightarrow \mathbb{R}$ given by $f(x) = x^2 + 1$ is not a one- one function.

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

a) Find the Boolean algebra expression for the following system.



b) Find $A^2 + A^T$ for matrix $A = \begin{bmatrix} 1 & 2 & 4 \\ 4 & 3 & -2 \\ 1 & 0 & -3 \end{bmatrix}$

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

- In how many different ways can the letters of the word 'OPTICAL' be arranged so that the vowels always come together?
- The probability that A, B and C hit the same target are $\frac{3}{5}$, $\frac{3}{4}$ and $\frac{2}{5}$ respectively. What is probability that -
 - Two shots hit the target
 - None of the shot hit the target, If all fire simultaneously.

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