BC — 201

Shreya

2017

Time : 3 hours

Full Marks : 80

Candidates are required to give their answers in their own words as far as practicable.

The questions are of equal value.

Answer any five questions.

1. (a) If A = {a, {b, c}}, then find P(A).

   (b) If A = {1, 3, 5, 7} and B = {2, 4}, then find the elements of A × B and B × A and check whether A × B = B × A or not.

2. Let A be a subset of the universal set U. Find a set equal to each of the following :

   (a) U − A − A

   (b) A − U −

   (c) A − φ − A

(d) $\phi - A$

(e) $A - A$ ϕ

(f) $U - U$

(g) $U \cap A$

(h) $U \cap \phi$

3. (a) Let $X = \{1, 2, 3, 4, 5\}$ and $Y = \{1, 2, 3\}$. Find the relation $R : X \to Y = \{(x, 4) \mid (x > 4)\}$. Give the range and domain of R.

(b) Define equivalence relation.

4. (a) Define function. "How to find inverse of a function ?

(b) Given $A = \{-1, 0, 2, 5, 6, 11\}$ and $B = \{-2, -1, 0, 18, 108\}$ and $f(x) = x^2 - x - 2$. If $f(A) = B$, find $f(A)$.

5. Define the following terms with reference to Lattice :

(a) Complete Lattice

(b) Sub-Lattice

(c) Complemented Lattice

(d) Isomorphic Lattice

6. Using boolean algebra, show that :

(a) $a.b + a.b' + a'.b + a'.b' = 1$

(b) $(a + b)(b + c)(c + a) = a.b + b.c + c.a$

7. (a) What is the use of K-map ? How does it works ?

(b) Draw the Hasse diagram of the factors of 6,30,800 all ordered by divisibility.

8. Simplify the following Boolean function by using K-map :

$$x'z + x'y + xy'z + yz$$

9. Show that the set of even integers is a group under addition.

10. (a) Define Boolean algebra. What is a boolean function ?

(b) What is Vector Space ? Explain.

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1. (a) What is Shift Register ? Draw a shift register using D flip-flops. 6

(b) Discuss the various types of Read only memories. 10

2. What is sequential logic circuit ? Write types of Flip Flops and explain them. 16

3. (a) Explain, in detail, about logic gates with the help of neat diagram and truth table. 8

(b) Define multiplexers. Draw 4 to 1 line multiplexer and explain it. 8

4. (a) Explain Karnaugh map method of simplification with example. 8

(b) What do you mean by error detecting and correcting codes ? Explain both with the help of suitable examples. 8

5. Describe the different addressing modes. 16

6. (a) Differentiate between RISC and CISC. 8

(b) What are zero-address instructions ? Explain with the help of an example. 8

7. Give Booth's algorithm to multiply two binary numbers. Explain the working of algorithm taking an example. 16

8. (a) If A = 1101 and B = 101, find : 8

(i) A + B

(ii) A – B

(iii) B – A

by 2's complement method

(b) With the help of a common layout, explain briefly the representation of a floating-point number. 8

9. (a) Explain the memory hierarchy based on speed, size and cost. 6

(b) Draw the block diagram of an associate memory and explain. 10

10. Explain the different types of mapping procedures in the cache memory organization. 16

BC — 203

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Answer any **five** questions.

1. (a) What is an Operator ? List all operators and explain with suitable example.

(b) How does the type char differ from string in C language ?

2. (a) What is an escape sequence ? What is its purpose ?

(b) Explain, with examples, the formatted input and output functions.

3. (a) With example, explain if and if-else statement in 'C'.

(b) Write a program in 'C' to check the entered number is (+)ve, (–)ve of zero.

4. (a) Discuss the indexing of array in 'C'. How does C handle the value in an array internally?

(b) Write a program in C to find addition of 10 numbers using loop.

5. (a) What is the function in C prog. Language? Write a program to calculate factorial of a given no. using function

(b) What is Recursion ? Differentiate between call by value and call by reference with suitable example.

6. (a) Differentiate between a Structure member and Structure variable.

(b) Distinguish between Auto and Register storage classes.

7. (a) What are the differences between array with in structure and structure array ?

(b) What do you understand by subscripted variable ? Explain with example.

8. (a) Write an algorithm to convert an infix expression into postfix form.

(b) Define data structure ? Explain how a structure can be dynamically allocated in C language.

9. (a) Define Data Structure. Explain how a structure can be dynamically allocated in C language.

(b) Write a program to implement bubble sort using arrays.

Scanned with CamScanner

BC — 301

2017

Time : 3 hours

Full Marks : 80

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The figures in the margin indicate full marks.

Answer any five questions.

1. Define the term MIS. Discuss the importance of Management Information System for any organization. 16

2. (a) Differentiate between a decision and a decision-making process. 8

(b) Explain the different phases of Simon model of Decision making with suitable example. 8

3. (a) Define the concept of Information. Explain cost and value of Information. 8

(b) Discuss the various categories of Information with proper examples. 8

4. What is System Analysis ? Why is it ne... Briefly explain the phases involved, in syste... design. 16

5. Explain the different stages of waterfall model of system development. 16

6. What is DFD ? What is the difference between logical and physical modeling ? Why is logical modeling more important in system analysis ? 16

7. (a) What is DSS ? Explain, briefly the various types of DSS with example. 8

   (b) Explain the various components of an Enterprise Management System (EMS). 8

8. Write notes on the following : 16

   (a) Modularisations

   (b) Module Specification

9. What is the role of audit trail ? What is its requirement in system analysis and design ? Give your own concepts. 16

10. On the time of design and development of project, what are the main criteria of selecting software ? 16