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BC - 201

Shieya

2017

Time : 3 hours

Full Marks: 80

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

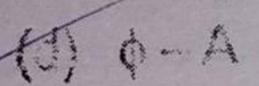
The questions are of equal value.

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 $A \times B$ and $B \times A$ and check whether $A \times B = B \times A$ or not.

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



- (e) A-A P
- (f) U-U
- (g) UnA
- (h) Uno
- 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-Lattica
 - (c) Complainanted Lattice
 - (d) Isom opinio Lattice

2C-15/2

- 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.
- (a) Winat 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?

(5)

(b) What is Vector Space? Explain.

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- 1. (a) What is Shift Register? Draw a shift register using D flip-flops.
 - (b) Discuss the various types of Read only memories.

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

2. (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
X.	(a)	Explain Karnaugh map metho	
1		simplification with example.	8
	(b)	What do you mean by error detecting	
1 mm		correcting codes? Explain both with the	help
		of suitable examples.	8
_5,	Des	scribe the different addressing modes.	16
6.	(a)	Differentiate between RISC and CISC.	8
	(b)	What are zero-address instructions? Exp	olain
		with the help of an example.	8
7.	Giv	e Booth's algorithm to multiply two bir	nary
	nur	nbers. Explain the working of algorithm tal	king
	an	example.	16
TR.	(a)	If A = 1101 and B = 101, find:	8
V,		(i) A + B	
		(ii) A-B	
		(iii) B-A	
		by 2's complement method	
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Contd.

- (b) With the help of a common layout, explain briefly the representation of a floating-point number.
- (a) Explain the memory hierarchy based on speed, size and cost.
 - (b) Draw the block diagram of an associate memory and explain.
 - 10. Explain the different types of mapping procedures in the cache memory organization.

2017 Shreya

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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 Clanguage? Suffering the Principal
 - (a) What is an escape sequence? What is its (a) Differentiable between a Structura member purpose? oldu erunun und uns
 - (b) Explain, with examples, the formatted input

EC - 17/1

- 3. (a) With example, explain if and if-eise +

 statement in 'C'.
 - (b) Write a program in 'C' to check the entered number is (4)ve, (-)ve of zero.
- 4. (a) Discuss the andexing of array in 'C'.

 How does Chandle the value in an array intemally?

 Internally?

 Sides rose in the sincum we went
 - (b) Write a program in C to find addition of 10 aulay laups to eas snotsed be it numbers using loop.
- 5 (a) What is the function in G prog. Language?

 Write a program to calculate factorial of a given no using function the metaxs
 - 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.

EC=47/1

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- 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 Clanguage.
- 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.

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2017

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The figures in the margin indicate full marks.

Answer any five questions.

- Define the term MIS. Discuss the importance of Management Information System for any organization.
- 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:

TD-24/1

(Tum over)

4.	What is System Analysis? Why is it nel Briefly explain the phases involved, in system design.			
5.	Explain the different stages of waterfall model system development.			
6.	What is DFD? What is the difference between logical and physical modeling? Why is logical modeling more important in system analysis?			
7.				
8.	Write notes on the following: (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			
	BC = 301			