S. S. JAIN SUBODH P.G.(AUTONOMOUS) COLLEGE, JAIPUR

Affiliated to University of Rajasthan, Jaipur

I CIA BCA I Semester Test, Sep. - 2018

Programming in C

Max. Marks: 30   **Duration**: 1 Hour

Instructions to the Candidates

Note:- **Section A** : Consists of three short answer type questions, each carrying 7.5 marks. The candidates are required to attempt any two (7.5x2=15 marks)

Section B : Consists of one descriptive question of 15 marks with an internal choice.

Section A

(1) Define flowchart and explain various symbols used in Flow Chart.

(2) Write an Algorithm / Pseudocode to print addition, subtraction and multiplication of any 2 numbers.

(3) Write a 'C' program to swap any two numbers.

Section B

(5) What is an operator? Explain all operators of 'C' language.

OR

Draw a flow chart to find out average of any three numbers.

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Discrete Mathematics

Max. Marks: 30

Duration: 1 Hour

Instructions to the Candidates

Note:- **Section A** : Consists of three short answer type questions, each carrying 7.5 marks. The candidates are required to attempt any two (7.5x2=15 marks)

Section B : Consists of one descriptive question of 15 marks with an internal choice.

Section A

(1) Show by mathematical induction that $\forall\, n \in N$:-

$$1 + 2 + 3 + ---- + n = \frac{n(n+1)}{2}$$

(2) If $A = \{1,2,3,4,5,\}$ and $B = \{3,4,5,6,7,8,9,\}$ then find.

   i) $A \cup B$ ii) $A \cap B$

  iii) $A - B$ iv) $B - A$

   v) $A \oplus B$

(3) A relation R is defined from a set $A = \{2,3,4,5\}$ to the set $B = \{3,6,7,10\}$ as follows:

$$(x, y) \in R \iff x \text{ divides } y$$

Express R as a set of ordered pairs and determine the domain and range of R. Also find R^{-1}

Section B

(4) Prove that the relation R on the set Z of all integers defined by

$(x, y) \in R \implies x - y$ is divisible by n is an equivalence relation on Z.   2+4+9

OR

In a town 45% read magazine A, 55% read magazine B, 40% read magazine C, 30% read magazines A and B, 15% read magazines B and C, 25% read magazines C and A, 10% read all the three magazines. Find what percentage does not read any magazine. What percentage reads exactly two of the magazines?

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I CIA BCA I Semester Test, Sep. - 2018
Fundamentals of Computer

Max. Marks: 30   **Duration**: 1 Hour

Instructions to the Candidates

Note:- **Section A** : Consists of three short answer type questions, each carrying 7.5 marks. The candidates are required to attempt any two (7.5x2=15 marks)

Section B : Consists of one descriptive question of 15 marks with an internal choice.

Section A

(1) Write characteristics of computers.

(2) Define applications of computers.

(3) Give classification of computers and explain in brief.

Section B

(4) What is generation of computers? Explain in brief.

OR

What is Input and Output Devices? Explain in brief.

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I CIA BCA I Semester Test, Sep. - 2018

Electrical Circuits and Semiconductor Physics

Max. Marks: 30

Duration: 1 Hour

Instructions to the Candidates

Note:- **Section A** : Consists of three short answer type questions, each carrying 7.5 marks. The candidates are required to attempt any two (7.5x2=15 marks)

Section B : Consists of one descriptive question of 15 marks with an internal choice.

Section A

Attempt any two   2x7.5

1 State Ohm's Law.

2 Define Electric Flux

3 What is Gauss's Law of Electrostatic

Section B

4 (a) Explain briefly Kirchoffs current and voltage law.   10

(b) What do you understand by Quantization of Charge?   5

OR

(a) Describe a parallel plate capacitor? On what factor does its capacitance depend.   7.5

(b) A heating element is marked with 110 volt and 1210 watts. Find the current value if it is connected to a 110 volt D.C. source.   7.5