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

Affiliated to University of Rajasthan, Jaipur

II CIA BCA I Semester Test, Oct. 2019

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 that if any seven numbers from 1 to 12 are chosen, then two of them will add to 13

(2) If p and q are two propositions, then show that $\sim (p \to q) \equiv p \wedge \sim q$

(3) Write the negation of the following statement: "If it rains, then they do not go outside".

Section B

(4) Write the truth table for

$$[(P \to Q) \wedge (Q \to R)] \to (P \to R)$$

OR

If $S = \{1,2,3,4,5\}$, then find the truth value of the following quantified statements:

(a) $\forall x \in S,\ P(x)$, where $P(x): x + 3 < 10$

(b) $\forall x \in S,\ P(x)$, where $P(x): x + 3 < 8$

(c) $\exists x \in S\ s.t.\ P(x)$, where $P(x): x + 3 = 9$

(d) $\exists x \in S\ s.t.\ P(x)$, where $P(x): x + 3 \leq 6$

(e) $\exists x \in S\ s.t.\ P(x)$, where $P(x): x + 3 > 8$

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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) Describe MICR, OCR and MSR.

(2) Explain memory hierarchy in brief.

(3) What is the difference between Algorithm and Flow Chart? Explain with examples.

Section B

(4) Convert the following conversion.

a) $(1101110010111010)_2 = (\quad)_{16}$

b) $(21.6875)_{10} = (\quad)_2$

c) $(9C5)_{16} = (\quad)_8$

d) $(251)_8 = (\quad)_{16}$

e) $(2BCD)_{16} = (\quad)_2$

OR

What are Impact and Non – Impact Printers? Explain each type of printers in brief.

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II CIA BCA I Semester Test, Oct - 2019

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. What is the difference between While and Do-While statements.
2. Write a program to print the series:

   n, n-1, n-2, n-3, n-4, ...0 i.e. 5 4 3 2 1 0
3. Write a program to check that whether a given number is an even number or not.

Section B

4. Explain the If, If-else and nested If with the help of suitable examples.

OR

Explain Looping structures of 'C' with the help of suitable examples.

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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 Calculate magnetic field at point lies on the equatorial line of the bar magnet?

2 Calculate magnetic field at a distance 'r' from a long current carrying wire.

3 Calculate magnetic field due to a current carrying Toroid.

Section B

4 Explain magnetic properties of Diamagnetic, Paramagnetic & Ferromagnetic materials.

OR

Calculate magnetic field due to a circular coil carrying current at
a) Center b) At a distance x