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

Affiliated to University of Rajasthan, Jaipur

CIA **B.C.A.** I Semester Test **September** 2017

Electrical Circuit 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

Q.1 Explain Coulomb's Law with mathematical formula.

Q.2 Two charges $+5\mu c$ and $-2\mu c$ are separated by a distance 3 cm. Find the Magnitude of force between them.

Q.3 Explain quantization and conservation of electric charge.

Section B

Q.4 Explain type of bonding in solid with examples.

OR

How many types of crystal structures are there in solid? Explain FCC (Face Centred Cubic) crystal structure.

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Fundamentals of Computer Science

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

Q.1 Explain characteristics of a computer.

Q.2 Describe the applications of computer.

Q.3 Explain any three :

(i) Bar Code Reader (ii) OMR (iii) Joystick (iv) OCR

Section B

Q.4 What is generation in computer terminology ? List various computer generations with key characteristics of computer of each generation.

OR

With perspective to size & functionality, explain the classification of computers with suitable example.

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II CIA B.C.A. I Semester Test, Nov. - 2017

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

Q.1 What is the purpose of switch statement? Explain with suitable example.

Q.2 Write a program to print the series-

1 4 9 16 25 .... n^2

Q.3 Explain the if-else statement in detail.

Section B

Q.4 Explain the difference between while and do-while statement with the help of suitable example.

OR

Write short note on (any two):

a) Break Statement

b) Goto Statement

c) Continue Statement

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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

Q.1 Describe features of good programming language.

Q.2 What is instruction format and instruction set?

Q.3 Explain the different parts of CPU.

Section B

Q.4 What is Memory? Explain the memory hierarchy.

OR

Convert the following numbers:

a) $(1101011)_2 = (\ )_{10}$

b) $(428)_{10} = (\ )_{16}$

c) $(101110)_2 = (\ )_8$

d) $(11010011)_2 = (\ )_{16}$

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

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II CIA BCA Semester I Test, Nov. - 2017

Discrete Mathematics

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

Instructions:

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)

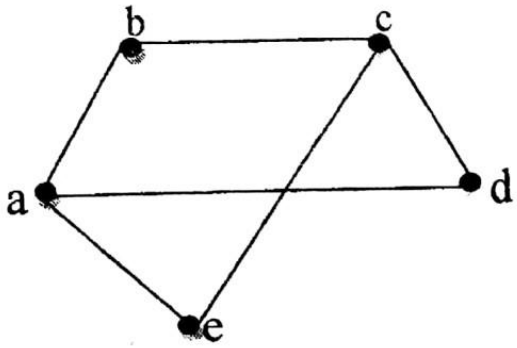
Section B: Consists of one descriptive question of 15 marks with an internal choice. (15X1=15 marks)

Section A

1. Define:-
   (a) Isolated Vertex (b) Odd Vertex
   (c) Regular Graph (d) Complete Graph
   (e) Multi Graph (f) Even Vertex

2. Convert $(B2F.5)_{16}$ into decimal form.

3. What is the complementary Graph of the following :



Section B

4. (a) Convert $(1632.23)_8$ into decimal system.
   (b) Multiply the hexadecimal number $(A21)_{16}$ by $(3B)_{16}$.

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I CIA B.C.A. I Semester Test, September- 2017

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

Q.1 What is Flow Chart ? Explain with the help of an example.

Q.2 Explain different Data Types available in C language.

Q.3 Write a program to swap two numbers without using third variable.

Section B

Q.4 Describe algorithm with a suitable example. Explain its various features.

OR

Explain different types of operators available in C.

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Section A ... three ... answer type questions, each carrying ... 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. (15X1=15 marks)

Section A

1. Define Partial Ordered Relation and Equivalence Relation with examples.
2. Let R be a relation on the set of all lines in a plane defined by $(l_1, l_2) \in R$ such that line l_1 is parallel to l_2. Show that R is an equivalence relation.
3. In a group of 500 peoples, 300 can speak Hindi only and 120 can speak English only. How many can speak both Hindi and English?

Section B

4. (a) Explain Pigeon Hole Principle

(b) Prove that ${}^{n}P_{n-1} = {}^{n}P_{n}$.

(c) Find the number of distinct permutations of the word MATHEMATICS.

(d) In how many ways can 4 mathematics books, 5 computer science books and 3 economics books be arranged in a shelf so that all books of the same subject remain together.

(e) In how many ways can 5 boys and 4 girls sit around a table so that no two girls sit together.

OR

(a) Show by Mathematical Induction that for all $n \in N$,

$1+2+3+.........+n = n(n+1)/2$.

(b) State the Barbar ' s Paradox.