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**I Semester B.C.A. Degree Examination,
October/November 2019**

(Choice Based Credit System)

(2019-20 Batch Onwards)

Fundamentals of Information Technology

Time : 3 Hours]

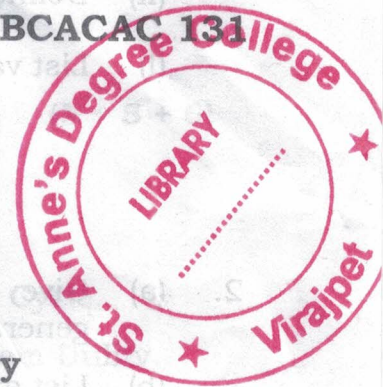
[Max. Marks : 80

Instructions : Answer **any ten** questions from Part A and **any one** full question from each Unit of Part B.

PART - A

1. Answer **any ten** of the following : **(10 × 2 = 20)**
- List any two advantages of transistors over vacuum tubes.
 - Compare Mainframe Computers with Super Computers.
 - Differentiate Static RAM and Dynamic RAM.
 - List out the components inside a computer.
 - Expand EEPROM, MICR.
 - Mention any two advantages and disadvantages of Magnetic Tapes.
 - Define Input device and Output device.
 - What do you mean by (i) Resolution and (ii) Refresh Rate?
 - What are the functions of Language translators and Device Drivers?
 - What is the difference between Public Domain software and Open Source software?

BCACAC 131



- (k) Define Table and Worksheet.
- (l) List various views in PowerPoint.

PART - B

UNIT - I

- 2. (a) Give the comparison between Second generation and Third generation computers.
 - (b) List and explain the features of computer.
 - (c) Write a note on Cache Memory (5 + 5 + 5)
- 3. (a) Discuss the classification of computers based on their features.
 - (b) Explain the components of a computer system with a neat diagram.
 - (c) Write a note on Motherboard. (5 + 5 + 5)

UNIT - II

- 4. (a) Explain briefly the Memory hierarchy of a computer system.
 - (b) Write a note on (i) USB and (ii) Mass Storage Devices.
 - (c) What are the advantages of Optical disks? (5 + 5 + 5)
- 5. (a) What is ROM? Explain briefly the different types of ROM.
 - (b) Write a note on (i) Memory stick and (ii) Magneto Optical Storage Devices.
 - (c) Briefly explain the mechanism of accessing data from Magnetic Disk. (5 + 5 + 5)

UNIT - III

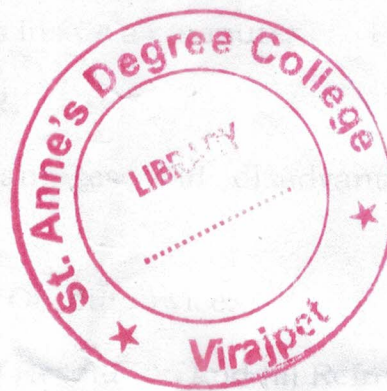
- 6. (a) Write a note on Pointing devices.
- (b) Explain the working of a Laser printer.
- (c) Explain
 - (i) Two classes of Computer Graphics display.
 - (ii) Speech Recognition System (5 + 5 + 5)



7. (a) Write a note on Projectors and Electronic Whiteboard.
(b) Explain the working of digital Camera.
(c) Differentiate between LCD and CRT monitor. **(5 + 5 + 5)**

UNIT - IV

8. (a) Explain the different phases in Program Development Cycle.
(b) List and briefly explain the common functions of System Utility.
(c) What is Mail Merge feature of MS-WORD? Discuss the components of it.
(d) Explain Relative and Absolute Referencing in EXCEL. **(4 + 4 + 4 + 3)**
9. (a) Compare Second generation and Third generation languages.
(b) List and briefly explain the Database objects in MS ACCESS.
(c) Differentiate System Software and Application Software with examples.
(d) Write a note on PowerPoint Masters. **(4 + 4 + 4 + 3)**





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BCACAC 108

Credit Based First Semester B.C.A. Degree Examination, Sept./Oct. 2020 COMPUTER ORGANIZATION (2018 – 19 and Earlier Batches) (Repeaters)

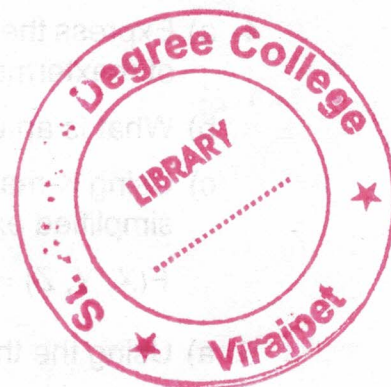
Time : 3 Hours

Max. Marks : 80

Note : Answer **any ten** questions from Part – A and **one full** question from **each** Unit in Part – B.

PART – A

1. a) Write Excess-3 and BCD equivalent of $(210)_{10}$. (2×10=20)
- b) Write the 1's and 2's complement of $(1001101.101)_2$.
- c) Write the truth table and logic diagram of OR gate.
- d) What is Half Adder ? Write its truth table.
- e) List all the minterms used for two variables (x and y).
- f) Perform $(1001)_2 + (0111)_2$.
- g) Write the excitation table of JK flip flop.
- h) What is sequential circuit ? Draw the block diagram.
- i) Define State table and State diagram.
- j) What is magnitude comparator ?
- k) What is Counter ? How many flip flops required for MOD 5 counter ?
- l) Write the truth table for 2-to-4 line decoder.



PART – B

Unit – I

2. a) Convert the following to Binary, Octal and Hexadecimal.
 $(225.225)_{10}$
- b) Perform the following subtraction using 9's and 10's complement
 - i) $(789)_{10} - (245)_{10}$
 - ii) $(123.56)_{10} - (45.981)_{10}$
- c) Write a note on error detection codes. (5+5+5)

P.T.O.



3. a) Perform the following conversions :

i) $(45)_{10} = ()_2$

ii) $(23.12)_8 = ()_{10}$

iii) $(1001010)_2 = ()_{16}$

b) Perform the following subtraction using 1's and 2's complement.

i) $(1010)_2 - (1000)_2$

ii) $(100.11)_2 - (011.01)_2$

c) State and prove any two theorems of Boolean algebra.

(5+6+4)

Unit – II

4. a) Express the following $F(X, Y, Z) = (X + YZ)$ as sum of minterms and product of maxterms.

b) What is an universal gate ? Prove that NAND is an universal gate.

c) Using K-map simplify the Boolean function and draw the logic diagram for the simplified expression.

$$F(X, Y, Z) = \sum(0, 2, 3, 4, 6).$$

(5+5+5)

5. a) Using the theorems and postulates simplify the Boolean function

$$XYZ + X'Y + XYZ' = Y$$

b) Using K-map simplify the Boolean function.

$$F(W, X, Y, Z) = \sum(0, 1, 2, 4, 5, 6, 8, 9, 12, 13, 14).$$

c) Find the complements of Boolean functions :

i) $F1 = X(X + YZ)$

ii) $F2 = AB' + C(A + B).$

(5+6+4)

Unit – III

6. a) Design and explain the working of full adder with its truth table and logic diagram.

b) What is Decoder ? Explain the working of 3 to 8 line decoder.

c) Explain the working of 2 bit magnitude comparator.

(6+5+4)



- 7. a) Explain the working BCD adder with suitable block diagram.
- b) Explain the working of 4 to 1 MUX.
- c) What is binary parallel adder ? Explain the working with block diagram. (5+5+5)

Unit – IV

- 8. a) Explain the working of RS – Flip Flop using NOR gate.
- b) Design MOD-8 synchronous counter using T flip flop.
- c) What is register ? Design 4 bit register. (5+6+4)

- 9. a) Explain the working of JK – Flip Flop with logic diagram and characteristic table.
- b) Design the MOD 7 counter using D flipflop.
- c) Design a 4 bit Binary ripple counter. (5+6+4)

