Reg. No. | | | | | | | | | |

BCACAC 131

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)**

   (a) List any two advantages of transistors over vaccum tubes.

   (b) Compare Mainframe Computers with Super Computers.

   (c) Differentiate Static RAM and Dynamic RAM.

   (d) List out the components inside a computer.

   (e) Expand EEPROM, MICR.

   (f) Mention any two advantages and disadvantages of Magnetic Tapes.

   (g) Define Input device and Output device.

   (h) What do you mean by (i) Resolution and (ii) Refresh Rate?

   (i) What are the functions of Language translators and Device Drivers?

   (j) What is the difference between Public Domain software and Open Source software?

(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 Seconf 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)**

Reg. No. | | | | | | | | | |

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.

4

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 the prove any two theorems of Boolean algebra. **(5+6+4)**

Unit – II

4. a) Express the following F(X, Y, Z) = (X + Y'Z) 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 + Y'Z)

   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)**