

AZ-149

B.C.A. 1st Year (Reg.)

Main Examination March/April 2018

DIGITAL COMPUTER ORGANISATION

Paper - BCA-106

Time Allowed : Three Hours] [Maximum Marks : 40

Note : All questions have to be attempted. Marks are noted after each question.

Section - A

Objective Type Questions

5 × 1 = 5

Q.1. Select the correct options:

- i) 2's complement of 11101010 is _____
 - (a) 11101011
 - (b) 00010110
 - (c) 00010101
 - (d) None

(2)

- ii) Universal gate from the following is _____
 - (a) OR
 - (b) AND
 - (c) NAND
 - (d) XOR
- iii) Cache memory is _____ memory
 - (a) Slow speed memory
 - (b) Very high speed memory
 - (c) Virtual memory
 - (d) Serial access memory
- iv) _____ is a program control instruction
 - (a) CMP
 - (b) BR
 - (c) JMP
 - (d) All the above
- v) USB stands for _____
 - (a) Unit Serial Bit
 - (b) Universal Serial Byte
 - (c) Universal Standard Bus
 - (d) Universal Serial Bus

(3)

Section - B

Short Answer Type Questions

5 × 2 = 10

Q.2. Explain fixed point and floating point representation of number.

OR

Explain ASCII, EBCDIC and gray codes.

Q.3. Give the logic symbol and truth table for two input AND, OR and XOR gates.

OR

Explain multiplexers and de-multiplexers and their use in digital circuits.

Q.4. Differentiate between main memory secondary memory and backup memory.

OR

Explain RAM, ROM, PROM, and EPROM.

(4)

Q.5. Define the following :

Bus, Microprocessor, CISC, RISC

OR

Give two examples each of data manipulation and data transfer instructions.

Q.6. Define the following :

USB, WiFi, Bluetooth, Ethernet

OR

Explain Synchronous Data Transfer

Section - C

Long Answer Type Questions

5 × 5 = 25

Q.7. Do as directed

i) Using 2's complement subtract 0010 from 0110

ii) Convert 84 to BCD

iii) Convert Binary number 1101.1010 to decimal

(5)

- iv) Convert Hexadecimal number 6B9 to binary.
- v) Convert octal 46.57 to its equivalent hexadecimal number

OR

- i) Using 2's complement perform 0.11-0.101
- ii) Convert binary number 11111110 to its equivalent octal.
- iii) Convert the octal number 5264 to its decimal equivalent
- iv) Convert the binary number 11010110 to its octal equivalent
- v) Convert octal to hex. :- 4753

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Q.8. Solve the following using Karnaugh map simplification :

$$y = \bar{A}\bar{B}\bar{C}D + \bar{A}BCD + A\bar{B}\bar{C}D + A\bar{B}CD + ABC\bar{D} + ABCD$$

OR

* What are Flip-Flops? Explain the different types of Flip-Flops.

(6)

Q.9. Explain the concept of virtual memory. Where is it located?

OR

Explain in detail hardware support required for memory management.

Q.10. Give the names of different CPU organizations and explain any one in detail giving its architecture and instructions.

OR

Explain at least five addressing modes with examples.

Q.11. Explain Interrupt driven data transfer scheme in detail.

OR

Explain DMA transfer scheme and its types in detail.

