

(6 pages)

Reg. No. :

Code No. : 6833

Sub. Code : HCAM 14

M.C.A. (CBCS) DEGREE EXAMINATION,
NOVEMBER 2013.

First Semester

Computer Applications

COMPUTER ORGANIZATION

(For those who joined in July 2012 onwards)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

1. The 2s compliment form (Use 8 bit word) of the number 1010 is
(a) 11111100 (b) 11110110
(c) 00110111 (d) 1011.
2. What is the algebraic function of Exclusive-OR gate
(a) $F = x y' + x' y$ (b) $F = x' y + x y'$
(c) $F = x' y' + x y$ (d) $F = x y + x' y'$.

3. The circuit converting binary data in to decimal is
(a) Encoder (b) Multiplexer
(c) Decoder (d) Code converter.
4. _____ register keeps track of the instructions stored in program stored in memory.
(a) Address Register (b) Index Register
(c) Program Counter (d) Accumulator.
5. A control function is a _____ variable that is equal to 1 or 0.
(a) Boolean (b) Integer
(c) Float (d) String.
6. The operation executed on data stored in registers is called
(a) Macro-operation (b) Micro-operation
(c) Bit-operation (d) Byte-operation.
7. In DMA the data transfer is controlled by
(a) Microprocessor (b) RAM
(c) Memory (d) I/O devices.

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8. The _____ and _____ instruction transfer data between processor registers and memory stack.
- (a) IN, OUT (b) PUSH, POP
(c) LD, MOV (d) LD, XCH.
9. _____ is used for storing the bulk of the programs and data that are subject to change
- (a) RAM (b) ROM
(c) CD-ROM (d) Magnetic tape.
10. Which type of memory is accessed simultaneously and in parallel on the basis of data content rather than by specific address or location?
- (a) Virtual (b) ROM
(c) Associative (d) Auxiliary.

SECTION B — (5 × 5 = 25 marks)

Answer ALL questions.

11. (a) Convert the following binary code into decimal, hexadecimal and octal codes.
(111011.1011)₂ = (?)₁₀ = (?)₁₆ = (?)₈.
- Or
- (b) Explain the tabulation method for reducing the Boolean function with example.

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12. (a) What is half adder? Explain its functions with logic diagram and truth table.

Or

- (b) Explain with a neat diagram the working of a 4-bit synchronous binary counter.
13. (a) Draw a one stage of logic circuit and explain its operations.

Or

- (b) What are program control instructions? Explain.
14. (a) Explain the isolated I/O method for assigning address in a common bus.

Or

- (b) Write short notes on Daisy chaining priority.
15. (a) Explain the memory hierarchy of a computer system.

Or

- (b) What is cache memory? Explain.

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PART C — (5 × 8 = 40 marks)

Answer ALL questions.

16. (a) Illustrate the DeMorgan's Laws of Boolean algebra.

Or

- (b) Simplify the following expression in

(i) sum of products form and

(ii) product of sums form.

$$AC' + B'D + A'CD + ABCD.$$

17. (a) Describe the 2×4 decoder with NAND gate and draw its logic diagram and truth table.

Or

- (b) What are the different types of shift registers? Explain any two.

18. (a) Discuss various addressing modes used for micro operations.

Or

- (b) What are typical data transfer instructions? Explain them with their mnemonics.

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19. (a) Describe any one asynchronous data transfer method.

Or

- (b) What are the modes of transfer for data transfer to and from peripherals and explain any one?

20. (a) Explain the hardware organization of associative memory.

Or

- (b) Discuss in detail about virtual memory.

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