

COPYRIGHT RESERVED BCA(I) — COMP/1/VII/11

**2011**

*Time : 3 hours*

*Full Marks : 80*

*Candidates are required to give their answers in their own words as far as practicable.*

*The figures in the margin indicate full marks.*

*Answer from both the Groups as directed.*

**Group – A**

**(Objective Type Questions)**

**Answer all questions.**

1. Choose the correct answer of the following :

$2 \times 10 = 20$

(a) A full counter with  $n$  flip-flops will have \_\_\_\_\_ states.

(i)  $2n$

(ii)  $2n - 1$

(iii)  $2n + 1$

(iv) None of the above

JX – 21/2

( Turn over )

(b) The binary number of the Gray code number 11011 is \_\_\_\_\_ .

(i) 11010

(ii) 10010

(iii) 10110

(iv) 00101

(c) The Decimal value of  $(110101.11)_2$  is \_\_\_\_\_ .

(i) 53.75

(ii) 55.75

(iii) 51.75

(iv) 57.75

(d) \_\_\_\_\_ is a physical partition.

(i) Page

(ii) Segment

(iii) DMA

(iv) None of the above

(e) One-to-Four de-multiplexer is to be implemented using a memory. How many words of memory are required and how many bits must each word have ?

(i) 4 words and 1 bit

(ii) 4 words and 4 bits

- (iii) 8 words and 1 bit
- (iv) 8 words and 4 bits
- (f) Which one does not change the information content during movement of binary information in registers ?
  - (i) Register transfer micro-operations
  - (ii) Arithmetic operations
  - (iii) Logic operations
  - (iv) None of the above
- (g) In a Half-Adder, Carry is obtained by using \_\_\_\_\_ gate.
  - (i) OR
  - (ii) NAND
  - (iii) AND
  - (iv) EX-OR
- (h) \_\_\_\_\_ is a fastest storage memory to copy instructions and operands.
  - (i) RAM
  - (ii) ROM
  - (iii) CACHE
  - (iv) HDD

- (i) An instruction sets includes \_\_\_\_\_
- (i) Opcode
  - (ii) Addressing modes
  - (iii) Registers
  - (iv) All of the above
- (j) Computer Architecture is abstracted by its \_\_\_\_\_
- (i) Instructions
  - (ii) Arithmetic Unit
  - (iii) Organization
  - (iv) None of the above

**Group – B**

**(Long-answer Type Questions)**

Answer any four questions :  $15 \times 4 = 60$

2. Explain RISC. Distinguish between RISC and CISC. Also explain the disadvantages and advantages of RISC.
3. Discuss memory hierarchy. With the help of logical diagram also explain RAM.

4. What do you understand by counter ? Distinguish between synchronous counter and asynchronous counter.
5. Describe the parallel priority method of assigning priority to interrupts. Also describe the match logic of associative memory.
6. Explain the Direct Memory Access mode of data transfer. Discuss the concept of Carry Look Ahead adder.
7. What are programmed driven I/O techniques ? Distinguish it with interrupt driven I/O technique.
8. What do you mean by Hardwired control ? Explain the function of Wilkes control with the help of suitable diagram.
9. Explain how the JK flip-flop can be made to function as a D flip-flop and T flip-flop.

