Roll No. ..... Total Pages : 2

MCA/DX **5517**

COMPUTER ORGANISATION
Paper : MCA-102
(New Syllabus)

Time : Three Hours] [Maximum Marks : 80

Note : Attempt *five* questions in all. Q. No. 1 is compulsory. In addition to question No. 1, attempt *four* more questions selecting *one* Question from each unit.

1. Answer the following questions briefly :
(a) Which gate is called Universal gate ? Why ?
(b) Discuss interrupt structure.
(c) Represent 879 in ASCII, EBCDIC and Excess-3 BCD codes.
(d) Differentiate between micro instruction and machine instruction.
(e) Convert the following :
$(45.2)_8 = (?)_{10}$
(f) Write advantages of Flash memory.
(g) Explain address format of a Hard disk.
(h) Discuss uses of Truth tables. 8×3=24

UNIT–I

2. Differentiate between the following in detail with examples :
(i) Error detecting and correcting codes.
(ii) Fixed point and Floating-point representation of numbers. 7×2=14

3. Explain the following in detail with examples :
(i) Digital logic gates and their uses.
(ii) Simplification of Boolean functions. 14

UNIT–II

4. (a) Define BCD adder. Also discuss its design and working briefly. 7

   (b) Design an Excess-3 to 8421 BCD code converter using 4-bit parallel binary adder. 7

5. Differentiate between Multiplexers, Demultiplexers and Comparators with their uses and applications in detail. 14

UNIT–III

6. (a) Using JK flip-flops design a 4-bit modulo-10 counter. 7

   (b) Differentiate between RAMs and ROMs with their relative merits and demerits. 7

7. Discuss the following in detail :

   (i) Shift registers.

   (ii) Optical storage devices. 14

UNIT–IV

8. List and explain various addressing modes in detail with their relative advantages and disadvantages. 14

9. Write short notes on the following :

   (i) Interrupt structures of various interrupts.

   (ii) Instruction formats of zero and one address. 14