V Semester B.C.A. Degree Examination, November/December 2018
(Y2K8) (Repeaters)
COMPUTER SCIENCE
BCA 502 : Computer Architecture

Time : 3 Hours

Max. Marks : 90/100

Instructions : 1) **100** marks for students of **2011 – 12** onwards (including Section – **D**).
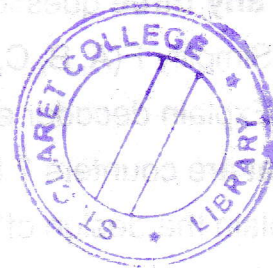2) **90** marks for students prior to **2011 – 12** (excluding Section – **D**)

SECTION – A

I. Answer **any ten** questions :

(10×2=20)

1) What are universal gates ?

2) State DeMorgan's theorem.

3) Mention the different logic families of IC.

4) What is encoder ?

5) What is state table ?

6) Define Baud rate.

7) What is program status word ?

8) What do you mean by transfer rate ?

9) Convert $(41.6875)_{10}$ to binary.

10) What is primary memory ? Give examples.

11) What is polling ?

12) What is cache memory ?

SECTION – B

II. Answer **any five** questions :

(5×5=25)

13) Explain the working of JK Flip Flop.

14) What are combination circuit ? Draw the block diagram and write the truth table of half adder.

P.T.O.

15) What are multiplexer ? Explain 4 to 1 MUX.

16) Explain ROM with a neat block diagram and write a note on different types of ROM.

17) With example explain the steps of is complement subtraction.

18) Explain any five data transfer instruction.

19) What are interrupts ? Explain various types of interrupts.

20) Write short on isolated and memory mapped I/O.

SECTION – C

III. Answer **any three** questions : (3×15=45)

21) a) Simplify $F(A, B, C, D) = \Sigma m(1, 3, 7, 11, 15) + \Sigma d(0, 2, 5)$ using K-map.   **8**

     b) Explain decoder expansion with a neat diagram.   **7**

22) What are counters ? Explain four bit counter in detail.

23) Explain the design of basic computer with flowchart.

24) a) What is asynchronous data transfer ? Explain source initiated strobe for data transfer.   **8**

     b) Explain with example different types of instruction format.   **7**

25) a) Explain the flowchart of interrupt cycle.   **7**

     b) Differentiate between CISC and RISC instructions.   **8**

SECTION – D

IV. Answer **any one** question : (1×10=10)

26) What are sequential circuit ? Write the state table and draw the state diagram for input equations :

$$D_A = A'x + B'x$$

$$D_B = A'x$$

Output equation

$$Y = Ax + Bx$$

27) Explain the various addressing modes.

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