SN – 458

A1

V Semester B.C.A. Degree Examination, November/December 2014
(Y2K8 Scheme)
COMPUTER SCIENCE
BCA 502 : Computer Architecture
100 Marks – 2013 – 14 & Onwards
90 Marks – Prior to 2013 – 14

Time : 3 Hours Max. Marks : 90/100

Instruction : *Section – **D** for **2011-12** Batch and onwards **only**.*

SECTION – A

I. Answer **any ten** questions. **Each** carries **two** marks. **(10×2=20)**

1) Write the symbol, expression and truth table of XNOR gate.

2) What is excitation table and state diagram ?

3) Mention the different logic families of IC.

4) Write the truth table and expression for octal-to-binary encoder.

5) What are 9's and 10's complement ?

6) What is excess-3 gray code ?

7) Differentiate direct addressing and indirect addressing.

8) What are FGI and FGO ?

9) Mention the major components of CPU.

10) List the different types of interrupts.

11) What is handshaking ?

12) What is associative memory ?

P.T.O.

SECTION – B

II. Answer **any five** questions. **Each** carries **five** marks. **(5×5=25)**

13) Explain working JK flip-flop with neat diagram.

14) Explain 4-bit register with parallel load.

15) Discuss the parity generator and parity checker.

16) Explain the different registers in basic computer.

17) Explain interrupt cycle with neat flowchart.

18) Mention the major characteristic features of CISC and RISC.

19) Explain DMA controller with a block diagram.

20) Write a note on memory hierarchy in a computer system.

SECTION – C

III. Answer **any three** questions. **Each** carries **fifteen** marks. **(3×15=45)**

21) a) Simplify the following Boolean function using K-map.

$F(w, x, y, z) = \sum (0, 2, 3, 4, 7, 9, 10, 11)$ and $d(w, x, y, z) = \sum (5, 6, 12, 15)$

b) Explain different binary codes with example. **(7+8)**

22) Design a sequential circuit with two JK flip-flops A and B and input x. When x = 1, the circuit goes through the state transitions from 00 to 01 to 10 to 11 back to 00 and repeat. When x = 0, the state of the circuit remains unchanged.

23) Explain the complete corttrol functions and micro-operation for basic computer with neat flowchart.

24) a) Explain the different addressing modes with example.

b) Explain the program control instructions. **(8+7)**

25) a) Explain the asynchronous data transfer.

b) Explain the working of associative memory. **(7+8)**

SECTION – D

(2011-12 Batch onwards only)

IV. Answer **any one** question. **Each** carries **ten** marks. **(1×10=10)**

26) a) Explain the working of Full-Adder.

b) Explain 4-bit shift register. **(5+5)**

27) a) Explain the common bus system.

b) Write a note on Instruction Formats. **(5+5)**