



NS – 613

V Semester B.C.A. Degree Examination, Nov./Dec. 2016
(CBCS – Fresh – 2016 – 17 & Onwards)
BCA – 503 : COMPUTER ARCHITECTURE

Time : 3 Hours

Max. Marks : 100

Instruction : Answer *all* Sections.

SECTION – A

- I. Answer **any ten** questions. **Each** carries **two** marks. (10×2=20)
- 1) What is Computer Architecture ? 2
 - 2) State and prove DeMorgan's theorem. 2
 - 3) Mention the different logic families of IC. 2
 - 4) Distinguish between RAM and ROM. 2
 - 5) What is Parity bit ? 2
 - 6) Write the BCD code for decimal number $8745.42_{(10)}$. 2
 - 7) What are the two types of control organization ? 2
 - 8) Define program counter. 2
 - 9) Mention the major components of CPU. 2
 - 10) What is PSW ? 2
 - 11) What is Polling ? 2
 - 12) What is memory management system ? 2

SECTION – B

- II. Answer **any five** questions. **Each** carries **five** marks. (5×5=25)
- 13) Prove NAND and NOR gates as universal gates. 5
 - 14) Explain PIPO shift Register with a diagram. 5
 - 15) Discuss the Parity generator and Parity checker. 5
 - 16) Explain the operation of interrupt cycle with a flow chart. 5

P.T.O.



- 17) Explain input-output instructions. 5
- 18) Explain the three types of CPU organization. 5
- 19) Explain the source initiated data transfer using handshaking with a block diagram and timing diagram. 5
- 20) Write a note on memory hierarchy in a computer system. 5

SECTION – C

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

- 21) a) Define K-Map ? Simplify the following Boolean function using K-Map : 8

$$F(A, B, C, D) = \sum(0, 2, 4, 6, 10, 11, 12, 13, 14, 15)$$
- b) Explain different binary codes. 7
- 22) a) Define counter. With a neat diagram explain 4-bit synchronous binary counter. 8
- b) Explain octal to binary encoder with diagram. 7
- 23) Explain the design of basic computer with flow chart. 15
- 24) What is addressing mode ? Explain the different types of addressing modes with examples. 15
- 25) a) Explain DMA controller with a block diagram. 7
- b) Explain the working of associative memory. 8

SECTION – D

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

- 26) a) Explain the working of full adder. 5
- b) Write a note on modes of data transfer. 5
- 27) a) Explain the common bus system. 5
- b) Write a note on RISC and CISC. 5