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**Model Question Paper**

**COURSE: B.Tech Course : ITE204 - Computer Architecture and Organization**

**Time: Three Hours Max. Marks :100**

**PART – A (8 X 5 = 40 Marks)**

**Answer ALL the Questions**

1. (a) Write a program to evaluate the below arithmetic statement using a stack organized

computer with zero-address instructions.

X = A-B+C\*(D\*E-F) **[3]**

(b) Perform the arithmetic operation and determine if there is an overflow (-35) - (-40)

**[2]**

2. Differentiate between interrupts and call subroutine instruction.

3. Illustrate the characteristics of some common memory technologies.

4. Define the terms Write Back and Write Through.

5. Briefly explain any four nonvolatile memories in detail.

6. List out the sequences of events during an input operation using handshake scheme?

7. How does the following two set of terms differ from each other in same set on I/O

communication:

(i) Memory Mapped I/O (vs) I/O mapped I/O

(ii) Programmed I/O (vs) Interrupt Driven I/O

8. Illustrate all the levels of RAID with suitable diagrams.

**PART – B (6 X 10 = 60 Marks)**

**Answer any SIX Questions**

9. Illustrate the architecture of Van Neuman computer with neat diagram.

10. Bring out the fetch and execute cycle with a neat sketch.

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11. Draw flowchart of Booth’s algorithm for signed multiplication and multiply the

following signed 2’s complement numbers. Justify your answer.

Multiplicand = 110011

Multiplier = 101100

12. Draw the flow chart for floating point addition and explain.

13. What is virtual memory? Explain address translation mechanism for converting virtual

address into physical address with neat diagram.

14. A 16MB main memory has 32KB cache with 8 bytes per line.

i) How many lines are there in the cache? (2)

ii) Show how the main memory and cache memory is organized when the cache is

direct- mapped. (6)

iii) Show how the main memory address is partitioned. (2)

15. Explain the various techniques to perform I/O operation in detail.

16. Discuss in detail the general organization and characteristics of magnetic disk drives.

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