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**[5152]-170**

**S.E. (Comp. Engg.) EXAMINATION, 2017**

**COMPUTER ORGANIZATION**

**(2012 PATTERN)**

**Time : Two Hours**

**Maximum Marks : 50**

**N.B. :—** (i) Attempt Q. 1 or Q. 2, Q. 3 or Q. 4, Q. 5 or Q. 6 and Q. 7. or Q. 8.

(ii) Figures to the right indicate full marks.

(iii) Assume suitable data, if necessary.

1. (a) Explain booth's multiplication Algorithm with suitable example. [6]
- (b) Explain the role of the following registers in processor :[6]
  - (i) Program Counter
  - (ii) Accumulator
  - (iii) Stack Pointer.

*Or*

2. (a) Differentiate between microprocessor, microcontroller and parallel processing. [6]
- (b) Explain the communication between processor and coprocessor. [6]
3. (a) Explain non-restoring division algorithm with flowchart. [6]

P.T.O.

- (b) Explain in detail hazards in instruction pipeline. What is operand forwarding ? [6]

*Or*

4. (a) Perform  $1100 \div 11$  using restoring division algorithm. [6]  
(b) Draw and explain single bus organization of CPU. [6]

5. (a) Compare UMA and NUMA architecture. [6]  
(b) Explain use of DMA controller in computer system. [7]

*Or*

6. (a) Write a note on memory mapped I/O and I/O mapped I/O with advantages and disadvantages. [6]

- (b) Explain direct and set associative cache mapping techniques along with their merits and demerits. [7]

7. (a) Draw and explain architectural block diagram of IBM cell broadband engine. Write application of it. [7]

- (b) Explain IA-64 architecture. [6]

*Or*

8. (a) Compare traditional superscalar architecture and IA-64 architecture. [7]

- (b) Explain advantages and disadvantages of parallel processing. [6]