Code: 9A05704 **R09**

B.Tech IV Year I Semester (R09) Supplementary Examinations June 2017

ADVANCED COMPUTER ARCHITECTURE

(Computer Science & Engineering)

Time: 3 hours Max. Marks: 70

Answer any FIVE questions

All questions carry equal marks

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1 (a) What is parallelism? Explain various conditions of parallelism.
(b) Explain how program can be partitioned to yield the shortest possible execution time.

2 (a) What is scalable computer system? Explain various parameters affecting its scalability.
(b) Explain standard performance measures for parallel processing.

3 (a) Explain internal data forwarding technique for enhancing performance of pipeline.
(b) Explain state & dynamic branch prediction techniques used in pipeline processor to cope up with control hazards.

4 (a) Explain cache coherence & synchronization mechanism in multiprocessor system.
(b) Explain paradigms of message passing mechanism.

5 (a) What are vector processors? Describe two different architectural configurations of vector processors.
(b) Explain matrix multiplication on SIMD architecture. Discuss the complexity of algorithm.

6 (a) What is multithreading? Explain multithreaded architectures & its computational model for parallel processing.
(b) Explain grain size, latency and context switching overheads.

7 (a) Describe following terms:
(i) Operand forwarding.
(ii) Register renaming.
(iii) Branch prediction buffer.
(b) What is instruction level parallelism? What are the limitations in exploiting instruction level parallelism?

8 (a) Describe power PC architecture with neat diagram.
(b) Discuss in brief different forms of parallelism.

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