Total No. of Questions : 6]

SEAT No. :

P4862

[Total No. of Pages :3

[5060] - 803
M.E. (Computer Engineering)
ADVANCED COMPUTER ARCHITECTURE
(2013 Pattern)

Time : 3 Hours] *[Max. Marks :50*

Instructions to the candidates:

1) ***All questions are compulsory.***
2) ***Neat diagrams must be drawn wherever necessary.***
3) ***Figures to the right indicate full marks.***
4) ***Assume suitable data, if necessary.***

Q1) a) What is shared memory concept? Explain the different shared memory multiprocessor models. **[5]**

b) Explain in detail generic computer architecture? **[4]**

OR

Short Notes on (Any three) **[9]**

a) Cache Coherence problem.

b) Pipeline Hazards.

c) Load Balancing/Scheduling.

d) SMP/ASMP.

Q2) a) Discuss and differentiate distributed memory MIMD Architecture and shared memory MIMD Architecture? **[4]**

b) Explain the Gustafson's for fixed time speed for scaled program sizes. **[4]**

OR

a) Explain data control and resource parallelism? **[4]**

b) What is the degree of parallelism. Describe average parallelism in terms of DOP. **[4]**

P.T.O.

Q3) a) How instructions are executed? Explain FETCH, DECODE and EXECUTE and also make the diagram to explain the processor? **[4]**

b) Compare the RISC & CISC architectures. **[4]**

OR

a) Comment on how the superscalar can increase performance with VLIW architecture. **[4]**

b) Write a short note on Array Processor and Parallel Processing. **[4]**

Q4) a) Explain the different hardware support for exposing ILP. **[4]**

b) State the latency hiding techniques? Explain the relaxed memory consistency? **[4]**

OR

a) What is vectorization & instruction types? Explain the distributed memory model in SIMD computer organization. **[4]**

b) What is cache coherency problem. How the directory based protocol overcome the problem updating the cache blocks. **[4]**

Q5) a) Explain different services offered by cloud? What is the difference between public and private cloud? **[4]**

b) Explain the features of parallel programming languages for program development. **[4]**

OR

a) What conditions are for better critical section? Explain message passing & shared memory model. **[4]**

b) Compare between grid and cloud computing. **[4]**

Q6) Write Short Notes on (Any Three) **[9]**

a) Neuro computing

b) Grid computing

c) Single Program Multiple Data (SPMD)

d) Quantum computing

OR

Write Short Notes on (Any Three) **[9]**

a) GPU parallel architecture.

b) Multiprocessor and Multicomputer.

c) Amdahl's Law.

d) Pipelining (Linear and non Linear)

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