

Total No. of Questions :6]

SEAT No. :

P4186

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[5255] - 684

M.E. (Computer Engineering)

ADVANCED COMPUTER ARCHITECTURE

(2013 Pattern) (Semester - I) (510103)

Time : 3 Hours]

[Max. Marks :50

Instructions to the candidates:

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

Q1) What is the shared memory concept? Describe the UMA & NUMA shared memory multi-processor model. **[9]**

OR

Define & explain the following terms W.r.t. various interconnect architectures (Any three): **[9]**

- a) Network diameter.
- b) Crossbar Network.
- c) Node degree.

Q2) Explain the various standard measures adopted by industry for computer performance measurement. **[8]**

OR

Comment on benefit of pipelining. Explain the instruction & arithmetic pipelining. **[8]**

Q3) Design arithmetic pipeline for floating point adder using **[8]**

$$X = A * 2^a$$

$$Y = B * 2^b$$

OR

Explain the concept pf pipelining in super scalar processor. How the RISC designed in POWER architecture. **[8]**

P.T.O.

Q4) What is cache coherency problem. Explain the software solution on cache coherency problem. **[8]**

OR

Discuss multi-threaded computation model. Explain the latency problems in remote loads. **[8]**

Q5) State the basic mechanism for interposes communication.

Discuss shared variable model in parallel programming. **[8]**

OR

Comment on the role of compiler to reduce the burden on programmer. Explain the compilation phases in parallel code generation. **[8]**

Q6) Explain the following terms w.r.t. cloud computing: **[9]**

- a) Infrastructure As Service
- b) Platform As Service
- c) Software As Service.

OR

Explain in brief the following architectures w.r.t. distributed parallel processing: **[9]**

- a) Quantum computing.
- b) Neuro computing.
- c) Grid computing.

