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B.E. (Computer Science & Engineering) Seventh Semester (C.B.S.)

Elective-I : Advanced Computer Architecture

P. Pages : 2 **NIR/KW/18/3574**

Time : Three Hours * 1 9 1 2 * Max. Marks : 80

Notes :
1. All questions carry marks as indicated.
2. Solve Question 1 OR Questions No. 2.
3. Solve Question 3 OR Questions No. 4.
4. Solve Question 5 OR Questions No. 6.
5. Solve Question 7 OR Questions No. 8.
6. Solve Question 9 OR Questions No. 10.
7. Solve Question 11 OR Questions No. 12.
8. Assume suitable data whenever necessary.

1. a) Draw and Explain basic computer design architecture. **6**

b) What are the various trends in power and energy? **8**

OR

2. a) Explain the role of compiler in computer performance. **7**

b) What are the responsibilities and tasks of computer designer. **7**

3. a) Explain different types of dependencies in brief. **8**

b) Differentiate between implicit and explicit parallelism. **5**

OR

4. a) How do reduce branch cost with dynamic branch prediction? **4**

b) Explain following properties of cache memory. **9**

i) Locality of reference.

ii) Inclusion.

iii) Coherence.

5. a) Explain execution of following instructions on a 7 stage pipeline. How many cycles will be required for execution? **8**

X = Y + Z and A = B * C

b) Explain synchronous and asynchronous linear pipeline processor. **5**

OR

6. a) Write short note on snoopy bus protocol. **6**

b) Explain three shared memory multiprocessor model in brief. **7**

7. a) Differentiate between following. **8**

i) DRAM and SRAM.

ii) Cache and virtual memory.

b) How virtual address mapped to physical address? What is paging? **6**

OR

8. a) What is virtual memory? Explain how address translation is done? **7**

b) Explain memory hierarchy design. and functionality of cache. **7**

9. a) Which features needed in processor to support message passing? **7**

b) What are the various potential problems occur in routing. **6**

OR

10. a) Discuss the switching mechanisms in message passing. **6**

b) Draw and explain message passing architecture. **7**

11. a) What are the various type of faults? **6**

b) What are the Advancements in disk storage? **7**

OR

12. a) Write short note on code optimization and scheduling. **7**

b) What are the reliability measures for designing I/o system. **6**

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Itâ€™s hard to beat a person who never gives up.

~ Babe Ruth