Roll No. _____ Total No. of Pages : 02

Total No. of Questions : 18

B.Tech.(CSE)/(IT) (2012 to 2017) (Sem.–3)

COMPUTER ARCHITECTURE

Subject Code : BTCS-301

M.Code : 56591

Time : 3 Hrs. **Max. Marks : 60**

INSTRUCTION TO CANDIDATES :

1. **SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.**
2. **SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.**
3. **SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.**

SECTION-A

Write briefly :

1) What is the difference between machine and instruction cycles?

2) What are the memory reference instructions? Give examples.

3) What is hardwired control? What are its advantages?

4) What is control memory?

5) Explain the concept of virtual memory.

6) What is the role of ROM memory in a computer system?

7) What is register transfer language?

8) What is an instruction pipeline?

9) What are registers? Can they be called memory?

10) What is Microprocessor?

SECTION-B

11) What is memory management hardware? Explain.

12) Explain the organization of a typical computer system.

13) What is pipelined control? Explain.

14) What are multilevel memory systems? Explain with the help of a diagram.

15) How does a RISC organize CPU works? What are its characteristics and advantages?

SECTION-C

16) What are the ways in which the peripheral devices may be transfer data to a computer system? What are the features of each of these ways? Compare the pros and cons of each type of data transfer.

17) Discuss the working of the vector and array processors.

18) Explain the design and working of a micro-programmed control unit.

NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.

Roll No. | | | | | | | | | | | |

Total No. of Pages : 02

Total No. of Questions : 18

B.Tech. (CSE) / (IT) (2012 to 2017) (Sem.–3)

COMPUTER ARCHITECTURE

Subject Code : BTCS-301

M.Code : 56591

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTION TO CANDIDATES :

1. **SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.**
2. **SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.**
3. **SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.**

SECTION-A

Write briefly :

1) What do you mean by register transfer language in computer architecture?

2) What is an instruction format in computer architecture?

3) Discuss array processors.

4) Compare RISC with CISC?.

5) What are the benefits of virtual memory?

6) Discuss timing and control.

7) Define Instruction level pipelining.

8) What is mapping functions in cache memory?

9) Write the benefits of serial communication?

10) Discuss memory synchronization.

SECTION-B

11) What are the special registers in a typical computer? Explain their purposes in detail.

12) What do you understand by interrupt? Explain the steps through which the processor handles the interrupts.

13) What are the advantages and disadvantages of hardwired and microprogrammed control?

14) What is DMA? Give an example where DMA mode of data transfer is useful?

15) What are addressing modes? Explain the various addressing modes with examples.

SECTION-C

16) Describe in brief the architecture of a vector processor. What are some of the key limitations of this architecture?

17) Write short notes on following :

a. Interprocessor communication and synchronization

b. Asynchronous data transfer

18) Explain various mechanisms of data transfer from a peripheral device.

NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.

Visit **www.brpaper.com** for downloading previous years question papers of
10th and 12th (PSEB and CBSE), IKPTU,MRSSTU, PSBTE, PANJAB UNIVERSITY,
PUNJABI UNIVERSITY, BFUHS, HPTU, HPSBTE , HARYANA DIPLOMA, MDU HARYANA

Roll No. | | | | | | | | | | | | **Total No. of Pages : 02**

Total No. of Questions : 18

B.Tech.(CSE) (2011 Onwards) (Sem.–5)

DESIGN & ANALYSIS OF ALGORITHMS

Subject Code : BTCS-503

M.Code : 70536

Time : 3 Hrs. **Max. Marks : 60**

INSTRUCTION TO CANDIDATES :

1. **SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.**
2. **SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.**
3. **SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.**

SECTION-A

Answer the following questions :

1. What is an algorithm?
2. If f(n) = n! and g(n) = 2n, indicate whether f = 0(g), or f = Ω(g), or both (f = θ(g)).
3. What do you mean by dynamic programming?
4. State the time complexity of Bubble sort.
5. Explain the applications of depth first search algorithm.
6. Describe asymptotic notation.
7. What is order statistics?
8. What do you mean by randomization?
9. What is convex hulls?
10. Explain the time complexity of binary search.

brpaper.com
brpaper.com

SECTION-B

11. Take the following list of functions and arrange them in ascending order of growth rate. That is, if function g(n) immediately follows function f(n) in your list, then it should be the case that f(n) is O(g(n)).

    f1(n) = $n^{2.5}$, f 2(n) = $\sqrt{2}n$, f3(n) = n + 10, f4(n) = 10^n, f5(n) = 100^n, and f6(n) = n^2 log n

12. Sort the list 415, 213, 700, 515, 712, 715 using Merge sort algorithm. Also explain the time complexity of merge sort algorithm.

13. Explain breadth first search algorithm with an example.

14. Write a short note on approximation algorithms.

15. Explain the classes of P and NP.

SECTION-C

16. Explain Strassen's algorithm for matrix multiplication with the help of an example.

17. Write a short note for the following :

    a. Divide and conquer technique

    b. Greedy algorithm

18. a. Why do we perform topological sorts only on DAGs? Explain.

    b. Using Dijkstra's algorithm find the shortest path from A to D for the following graph.

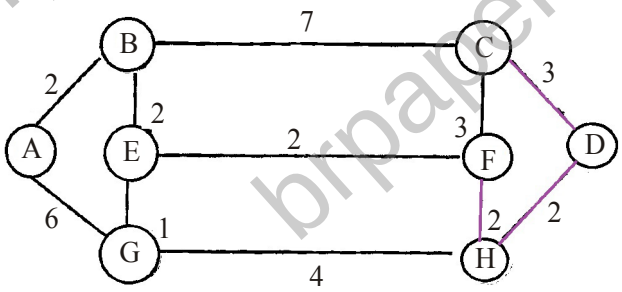

Fig.1

bnpaper.com
bnpaper.com

NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.