Total No. of Questions : 8] [Total No. of Printed Pages : 4

Paper Code : 21312

F-412

B.C.A. (Third Semester)

Examination, March-2022

(New Course)

Paper - BCA-302

Computer Organization

Time : Three Hours] *[Maximum Marks : 70*

Note : Attempt any **five** questions. **All** questions carry equal marks.

1. (a) Explain the concept of gray code with proper example.

   (b) Discuss the procedure of addition & subtraction of numbers using signed 21s complement using one example for each.

2. (a) Elaborate the construction process of A.L.U.

   (b) Multiply (–4) and (+5) using Booth's algorithm with –4 as multiplicand & +5 as multiplier.

3. (a) How stack is used for information representation? Explain.

   (b) Describe O–address 1–address, 2–address and 3–address type instruction formats with example.

4. (a) What are various types of addressing modes? Write in brief about each mode.

   (b) Differentiate CISC from RISC.

5. (a) Draw a well labelled memory hierarchy & explain the concept of locality of reference.

(b) Explain the concept of cache memory. What is hit ratio? Suppose there are four memory references that results in a hit and 6 memory reference results in a cache-miss. Calculate the hit ratio.

6. (a) Write in brief about :

(i) PROMs

(ii) Page Faults

(iii) Paging & Segmentation

(b) What are various page replacement policies? Explain each. What do you mean by TLB?

7. (a) How serial bus arbitration is different from parallel bus arbitration? Justify with suitable block diagram.

(b) Discuss the concept of direct memory Access with a well labelled block diagram. What is cycle stealing?

8. Write short notes on any **four** of the following:

(a) K-MAP method

(b) Interrupts

(c) SRAM and DRAM

(d) IEEE floating point format

(e) Octal number system