



www.nagpurstudents.org





- 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.

1. a) What is bus ? Explain in detail about Single Bus Architecture. **8**
- b) Explain Different instruction format and write the following instruction into zero, one and two address instruction $(A \times B) + (C + D)$. **6**

OR

2. a) Explain various addressing modes with example which are used in instruction set design. **7**
- b) What is sub routine ? Explain the use of stack in nested subroutine. **7**
3. a) Represent : **8**
- i) -450.725
 - ii) -0.000138
 - iii) 8.2489
- In single and double precision IEEE format.
- b) Solve the following by using Booth's algorithm **6**
- $47 * -3$.

OR

4. a) Write and explain about fast adder. **6**
- b) Using restoring division solve the following **8**
- $11011 \text{ DIV } 00111$
5. a) Design $8 \text{ m} \times 64 \text{ RAM}$ by using $512 \text{ K} \times 8$ memory chips. **8**
- b) Explain memory Hierarch in detail. **5**

OR

6. a) Find page hit and page fault ratio for the given page address stream using - **7**
- i) Least recently used
 - ii) Optimal page
- Assume four page buffers, page address stream $\rightarrow 2, 3, 2, 1, 5, 2, 4, 5, 3, 2, 5, 2$.

- b) A block set associative cache consist of a total 64 blocks. The main memory contains 4096 blocks. Each set consist of 128 block. Each set consist of 4 block. 6
- i) How many bits are there in a main memory address.
- ii) How many bits are there in each of TAG, SET and WORD fields.
7. a) Write a short note on Direct memory access of data transfer. 7
- b) Explain I/O mapped I/O and memory mapped I/O. State the advantages of I/O mapped I/O over memory mapped I/O. 6
- OR**
8. a) Write a short note on Daisychain scheme of resolving interrupt priority. 6
- b) Explain the working principle of CD-ROM and organisation of data on CD-ROM. 7
9. a) What do you mean by Hazard ? Explain Different types of Hazard in detail. 8
- b) Write a short note on delayed branch. 5
- OR**
10. a) Explain in detail about operand forwarding in pipeline. 7
- b) Explain the concept of pipelining. How it improve the execution of program over sequential execution ? Also draw the hardware arrangement of four stage pipeline. 6
11. a) Explain the classification of parallel architecture. 8
- b) Write a short note on Array Processor. 5
- OR**
12. a) What is multicore architecture ? Explain in detail. 6
- b) Write a short note on : 7
- i) Vector Processor.
- ii) Loosely and tightly coupled multicomputer system.



www.nagpurstudents.org

The secret of getting ahead is getting started.

~ Mark Twain

