

B.Sc(CS)- IV Semester Examination, 2020-21
Subject: Computer System Architecture
Subject Code: CORE VIII
Date: 19/07/2021, Time: 10:00 am – 12:00 pm
Total Marks: 70

Important Instruction: Write your **name** and **roll number** on the top of the first page.

Attempt **any 14 questions.**

Marks: 14 X 5 = 70

- Q1. Write function table of 8 X 1 multiplexer.
- Q2. Draw only logic circuit of 2 bit magnitude comparator.
- Q3. Describe the working of a 4 bit counter with its logic circuit using JK flip flop.
- Q4. Write function table of 3 X 8 decoder.
- Q5. Describe set associative mapping process of cache memory with diagram.
- Q6. Write pipelining table for the execution of arithmetic expression $(A_i * B_i) - (C_i / D_i)$
For $i= 1$ to 6
- Q7. Draw diagram for basic Computer Registers Connected to a Common Bus.
- Q8. Describe any three memory reference instructions.
- Q9. Multiply 11101 and 10101 using multiplication algorithm.
- Q10. Divide 0111011100 by 11100 using division algorithm.
- Q11. Draw match logic for one word of associative memory.
- Q12. Add the following using signed 2's complement representation
i) 43 & -63 ii) -35 & -27
- Q13. Describe indirect and relative addressing mode with diagram.
- Q14. Write one address instruction formats for the expression $X= A*B+C*D+E*F$
- Q15. Draw flow chart for interrupt cycle.
- Q16. Evaluate the postfix expression $84 \ 2 / 2 \ 18 * + \ 18 \ 2 / - \ 3 +$ using STACK diagram.
- Q17. Write assembly language program to find 2's complement of a number. Take ORG as 505.
- Q18. Simplify the expression using K map $Y(A,B,C,D)=\sum (0,2,3,5,7,8,9,10,12,13,14,15)$
- Q19. Simplify the expression $\overline{C\bar{A}(C+B)} + \bar{C}A . \overline{C+A+B}$ using Boolean laws.