Code No.: CS302PC | R20 | H.T.No. | | | 8 | R | | | | | |

CMR ENGINEERING COLLEGE: : HYDERABAD
UGC AUTONOMOUS
II–B.TECH–I–Semester End Examinations (Supply)-June- 2022
COMPUTER ORGANIZATION AND ARCHITECTURE
(Common to CSE, IT, CSC&CSM)

[Time: 3 Hours] **[Max. Marks: 70]**

Note: 1. Answer *any FIVE questions. Each question carries 14 marks.*
2. *All questions carry equal marks.*
3. *Illustrate your answers with NEAT sketches wherever necessary..*

5X14=70

1. a) Discuss in detail about various arithmetic operations. [7M]
   b) Explain the design of control unit. [7M]

2. a) Differentiate between hardwired control unit and Microprogrammed control unit. Hardwired control unit is faster than micro programmed control unit. Justify this statement. [7M]
   b) What is an addressing mode. Explain various addressing modes with examples. [7M]

3. a) Explain the fixed point division operation with flow chart and example. [7M]
   b) Explain in detail with neat sketch Booth Multiplication Algorithm with example. [7M]

4. a) Explain different types of modes of transfers (or) I/O communication techniques. [7M]
   b) Explain the different types of mapping techniques are used in usage of the cache memory. [7M]

5. a) Explain RISC pipeline (or) three segment instruction pipeline. [7M]
   b) Write about characteristics of CISC and RISC. [7M]

6. a) Draw the block diagram of a digital computer. Draw the Input-Output Configuration. [7M]
   b) Describe the Register Reference Instructions. List out the Basic Computer Registers. [7M]

7. a) What is a pipeline register in micro programmed control unit. Give an example each of Zero-address, One-address, two-address and three-address instruction. [7M]
   b) Why do we need subroutine register in a control unit. Discuss about mapping process in microprogrammed control unit. [7M]

8. a) Using 10's complements subtract 72532-3250? Using 2's complement perform $(42)_{10} - (68)_{10}$. [7M]
   b) Solve for X in the equation $(19.125)_{10} = (X)_8$? Define overflow and underflow. [7M]

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