Please check that this question paper contains 09 questions and 02 printed pages within first ten minutes.

EVENING

[Total No. of Questions: 09] [Total No. of Pages: 02]

Uni. Roll No. .....

29 JUN 2022

Program: B.Tech. (Batch 2018 onward)
Semester: 4th
Name of Subject: Computer Architecture and Microprocessors
Subject Code: PCCS-104
Paper ID: 16214

Time Allowed: 03 Hours **Max. Marks: 60**

NOTE:

1) Parts A and B are compulsory
2) Part-C has Two Questions Q8 and Q9. Both are compulsory, but with internal choice
3) Any missing data may be assumed appropriately

Part – A **[Marks: 02 each]**

Q1.

a) Show the register transfer sequence to read a word from memory.

b) Under what situations the micro program counter is not incremented after a new instruction is fetched from micro program memory?

c) Explain different ways to clear contents of accumulator.

d) An address space is specified by 24 bis and the corresponding memory space by 16 bits. How many words are there in the virtual memory and in the main memory?

e) Compare PROCEDURE and MACRO.

f) Explain how interrupt requests from multiple devices can be handled?

Part – B **[Marks: 04 each]**

Q2. Discuss how floating-point addition is carried out in a computer system. Give an example for a binary floating-point addition.

Q3. What is the need for addressing in a computer system? Explain the different addressing modes with suitable examples.

Q4. Explain different types of instructions with examples. Compare their relative merits and demerits.

Q5. "DMA controller is designed to transfer data at the fastest rate". Justify the statement.

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Q6. Compare the operations of subroutine CALL/RET and stack PUSH/POP.

Q7. Explain the difference between memory mapped and peripheral mapped I/O with the help of diagrams.

Part – C **[Marks: 12 each]**

Q8. Construct a 4-bit adder/subtracter circuit using full adders and explain its function.

OR

What is a mapping function? Discuss the various mapping techniques associated with cache memory.

Q9. Design the functional block diagram of 8085 microprocessor. With the help of an example, explain how an instruction is decoded and executed.

OR

Design and explain traffic light system by interfacing it to the microprocessor.

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EVENING

For office use only: 29 JUN 2022

If the COs (Course outcomes) are mentioned on the syllabus of allotted subject, then it is compulsory for the paper setter to provide this file along with the question paper.

(To be typed by paper setter, and submitted along with the question paper)

Paper setter must take two printouts of this page after completing. One printout to be inserted along with print copy envelope (B1) and other in office copy envelope (B2).

Separate Page to be provided by Paper Setter without revealing paper setter id

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Detail of CO Mapping and Revised Bloom's Taxonomy (RBT) Level of the questions										
Question No.*	Q1a	Q1b	Q1c	Q1d	Q1e	Q1f	Q1g	Q1h	Q1i	Q1j
CO number*	CO1	CO1	CO2	CO1	CO2	CO5	NA	NA	NA	NA
RBT Level*	L1	L1	L2	L4	L5	L5	NA	NA	NA	NA
Question No.**	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11
CO number**	CO3	CO2	CO2	CO6	CO4	CO6	CO3	CO6	NA	NA
RBT Level**	L2	L1	L2	L5	L5	L5	L3	L6	NA	NA

Description of RBT Levels

RBT Level Number	L1	L2	L3	L4	L5	L6
RBT Level Name	Remembering	Understanding	Applying	Analyzing	Evaluating	Creating