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Name:

Reg. No:

FOURTH SEMESTER B.Voc. DEGREE EXAMINATION, APRIL 2024

(Information Technology)

CC18U GEC4 MC12 – MICROCONTROLLERS AND APPLICATIONS

(2018 to 2020 Admissions – Supplementary)

Time: 3 Hours

Maximum: 80 Marks

PART A

Answer *all* questions. Each question carries 1 mark.

1. Microcontrollers often have
(a) CPUs (b) RAM (c) ROM (d) All of the above
2. Bit addressable memory locations are -----
3. True or False:
Data transfer from I/O to external data memory can only be done with the MOV command.
4. True or False:
The statement LCALL READ passes control to the line labelled READ.
5. The SP is of ----- wide register.
6. If we push data onto the stack then the stack pointer -----
7. Do the two instructions mean the same?
1. BACK: DEC R0 JZ BACK 2. BACK: DJNZ R0, BACK.
8. The 8051 microcontroller is of ----- pin package.
9. ----- Operator is the most important while assigning any instruction as register indirect instruction.
10. When an interrupt is enabled, then where the pointer moves does immediately after this interrupt has occurred?

(10 × 1 = 10 Marks)

PART B

Answer any *eight* questions. Each question carries 2 marks.

11. What is a microcontroller?
12. What is a stack pointer (SP)?
13. What is an interrupted signal?
14. Why is the oscillator circuit used?
15. Explain the two power saving mode of operation.
16. Name three features of 8051.
17. What is indirect addressing mode?

18. How to switch register banks in 8051?
19. What is the job of a TMOD register?
20. What is MAX232?
21. What is DAC?
22. Draw the format of PCON register of 8051.

(8 × 2 = 16 Marks)

PART C

Answer any *six* questions. Each question carries 4 marks.

23. What are the advantages of a microcontroller?
24. Draw the architecture of 8051
25. Compare MOVX and MOVC instructions.
26. Write a program to Subtract two 8 – bit numbers using 8051.
27. Explain different addressing modes used in 8051 microcontroller.
28. Explain the following instructions with examples
 - 1) MOVC
 - 2) SJMP
 - 3) JB C
 - 4) MUL
29. What are data transfer instructions? Explain.
30. What is the difference between serial and parallel communication?
31. What is DAC? Explain

(6 × 4 = 24 Marks)

PART D

Answer any *two* questions. Each question carries 15 marks

32. Explain difference between Microprocessor and Microcontroller. Also list different criteria for selection of a microcontroller for a particular application.
33. Compare polling and interrupt. What are the steps microcontroller performs upon activation of interrupt?
34. What is a Timer? Write a short note on Timer modes of operation.
35. Explain interfacing of LCD with microcontroller.

(2 × 15 = 30 Marks)
