

**4E1220**

Roll No. \_\_\_\_\_

Total No of Pages: **2****4E1220****B. Tech. IV-Sem. (Back) Exam., Oct.-Nov. - 2020****Electronics & Communication Engineering****4EC4 - 05 Microcontrollers****EC, EI****Time: 2 Hours****Maximum Marks: 82**[ersahilkagyan.com](http://ersahilkagyan.com)**Min. Passing Marks: 29***Instructions to Candidates:*

*Attempt all ten questions from Part A, four questions out of seven questions from Part B and two questions out of five from Part C.*

*Schematic diagrams must be shown wherever necessary. Any data you feel missing may suitably be assumed and stated clearly. Units of quantities used /calculated must be stated clearly.*

*Use of following supporting material is permitted during examination. (Mentioned in form No. 205)*

1. NIL2. NIL**PART - A****(Answer should be given up to 25 words only)****[10×2=20]****All questions are compulsory**

- ~~Q.1~~ Name three features of the 8051.
- Q.2 What is the major difference between the 8051 and 8052 microcontrollers?
- ~~Q.3~~ What is the size of the SP register?
- ~~Q.4~~ How does an instruction differ from a directive?
- Q.5 Which program produces the "Obj" file?
- ~~Q.6~~ Why do we need subroutines?
- Q.7 When LCALL is executed? How many bytes of the stack are used?
- ~~Q.8~~ Define Cache memory.
- ~~Q.9~~ Which pins are assigned to  $V_{cc}$  and GND?
- ~~Q.10~~ What is the error in the following instruction- MOV A, @R2?

## PART - B

(Analytical/Problem solving questions)

[4×8=32]

Attempt any four questions

- Q.1 Show how to put value 99H into RAM location F6H of upper RAM in the 8052?
- Q.2 Show how would you check whether the P flag is high?
- Q.3 Which version of the 8051 does not have on-chip ROM? How many parallel and serial port lines the 8051 has?
- Q.4 Examining the stack, show the contents of the registers and SP after execution of the following instructions. All values are in hex.
- POP 3 ; POP stack into R3
- POP 5 ; POP stack into R5
- POP 2 ; POP stack into R2
- Q.5 Discuss the role (need) of timers in microcontrollers.
- Q.6 What do you mean by Arithmetic Coprocessors?
- Q.7 Multiply 25 by 10 using the technique of repeated addition.

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## PART - C

(Descriptive/Analytical/Problem Solving/Design Questions)

[2×15=30]

Attempt any two questions

- Q.1 Name and explain the working of all instructions available in 8051 assembly language.
- Q.2 Draw and explain block diagram of 8051 microcontroller.
- Q.3 Discuss ARM microcontrollers interface designs with suitable diagram.
- Q.4 Explain the working of A/D and D/A converters.
- Q.5 Define Interrupts. Give the role of interrupts in programming of microcontrollers. Give suitable example in support of your answer.
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