

B.E./B.TECH. Degree Examination, January 2021

Semester - IV

EC16504-Microprocessors and Microcontrollers

(Regulation 2016)

Time: Three hours

Maximum: 80 Marks

Answer **ALL** questions

PART A - (8 X 2 = 16 marks)

1. A micro controller at-least should consist of:
 - a) RAM, ROM, I/O devices, serial and parallel ports and timers
 - b) CPU, RAM, I/O devices, serial and parallel ports and timers
 - c) CPU, RAM, ROM, I/O devices, serial and parallel ports and timers
 - d) CPU, ROM, I/O devices and timers
2. Give the names of the buses present in a controller for transferring data from one place to another?
 - a) data bus, address bus
 - b) data bus
 - c) data bus, address bus, control bus
 - d) address bus
3. The 8051 has _____ 16-bit counter/timers.
 - a)1
 - b)2
 - c)3
 - d)4
4. Which of the following instruction is not valid?
 - a) MOV AX, BX
 - b) MOV DS, 5000H
 - c) MOV AX, 5000H
 - d) PUSH AX
5. List the operating signals of 8086 microprocessor in minimum and maximum mode.
6. Compare closely coupled and loosely coupled configurations.
7. Which register is used for serial programming in 8051? Illustrate it.
8. Name the five interrupt sources of 8051.

PART B - (4 X16 = 64 marks)

09. (a) Explain briefly about the internal hardware architecture of 8086 microprocessor (16)
with a neat diagram and the write the program to ADD two numbers using 8086
processor.

(OR)

- (b) (i) What are the schemes for establishing priority in order to resolve bus (10)
arbitration problem? Explain each scheme in detail.
(ii) Write an 8086 Assembly Language Program to check whether the given (6)
string is palindrome or not.

10. (a) Explain in detail with the modes of operation of 8255 and write a program to (16)
demonstrate it.

(OR)

- (b) Explain the closely coupled and loosely coupled configuration of multiprocessor (16)
configuration with suitable diagram.

11. (a) Draw the architecture and pin diagram of programmable DMA controller and (16)
explain its function in detail and write an example program.

(OR)

- (b) With neat sketch, explain the functional block diagram of 8051 microcontrollers. (16)
Write a program to subtract two numbers using 8051 microcontroller.

12. (a) Explain 8051 serial port programming with examples. (16)

(OR)

- (b) Draw the diagram to interface a stepper motor with 8051 microcontrollers and (16)
Write its ALP to run the stepper motor in both forward and reverse direction with
delay.