

(For candidates admitted from 2016–2021 batch)

B.Sc. DEGREE EXAMINATION, NOVEMBER 2023.

Part III — Electronics — Major

MICROCONTROLLER AND EMBEDDED SYSTEMS

Time : Three hours

Maximum : 75 marks

SECTION A — (10 × 2 = 20)

Answer ALL Questions

1. Name the three features of the 8051.
2. What is the function of the bits PSW.3 and PSW.4?
3. What are the advantages of interrupt-based data transfer?
4. How many hardware interrupts does the 8051 have? How are they activated?
5. Which are the control pins of the LCD? What are their functions?
6. Indicate the steps to detect the key press.

7. What does the term embedded system mean?
8. An embedded system is also called a dedicated system why?
9. What are the types of IO ports?
10. What is Watchdog Timer?

SECTION B — ($5 \times 5 = 25$)

Answer ALL Questions, Choosing either (a) or (b)

11. (a) Distinguish between the microprocessor and microcontroller.

Or

- (b) Explain stack and stack pointer with neat diagram.

12. (a) Explain the bit specification of TCON register.

Or

- (b) Explain about the timer and counter of 8051 micro controller.

13. (a) Explain the operation of LCD with pin descriptions and diagram.

Or

- (b) Explain the functions of each pin in ADC0804 with its pin diagram.

14. (a) Explain what is an embedded system, using a block diagram.

Or

- (b) What is a system on chip and what are the main components of an SOC?

15. (a) What are the different types of I/O devices in embedded systems?

Or

- (b) Explain the wireless and mobile system protocols.

SECTION C — ($3 \times 10 = 30$)

Answer any THREE questions

16. Explain the various addressing modes of 8051 microcontroller with example.
17. Explain the interrupts available in 8051 microcontroller.
18. Draw the interfacing diagram for DAC 0808 with 8051 and explain how the output is calculated.
19. Explain different types of Embedded processors.
20. Explain serial communication and their protocols.