19APC0418T

B.Tech. DEGREE EXAMINATION, FEBRUARY/MARCH 2023.

Seventh Semester

ECE

EMBEDDED SYSTEMS

(RU 19 Regulations)

Time : 3 Hours *Max. Marks : 70*

PART — A

(Compulsory question)

Answer the following. **(10 × 2 = 20 Marks)**

1. (a) What is an embedded system?
   (b) Write the major application areas of embedded system.
   (c) Explain the usage of capacitors and inductors in embedded hardware circuit.
   (d) What is current limiting Resistor in embedded application?
   (e) List the features of I2C, SPI an embedded System? interfacing to an embedded system?
   (f) List external communication Interfacing Devices
   (g) Write the execution steps for embedded firmware.
   (h) Write about super loop based approach.
   (i) Define Process Management.
   (j) What is Multitasking?

PART — B

Answer ONE FULL question from each Unit.

All questions carry equal marks. **(5 × 10 = 50 Marks)**

UNIT – I

2. (a) Write and explain the classification of embedded systems.
   (b) Explain the purpose of embedded system.

Or

3. (a) Write the history of embedded system.
   (b) Write the Major applications of Embedded Systems.

Turn Over

UNIT – II

4. (a) Explain briefly about parallel device ports.

(b) Define Sensors. Explain the I/O subsystem.

Or

5. (a) Draw the Explain the Architecture of Embedded Systems.

(b) Explain the Characteristics of Embedded Systems.

UNIT – III

6. (a) Explain the onboard communication interfaces.

(b) Explain briefly about wireless devices.

Or

7. (a) With a neat diagram Explain about I2C.

(b) Explain about Parallel Interfacing Devices.

UNIT – IV

8. (a) Explain about Embedded Firmware Approaches.

(b) Explain the conversion process from source file to object file translation.

Or

9. (a) Write a note on C versus embedded C and compiler versus cross compiler.

(b) What is Interrupt? Explain multiple interrupts with examples.

UNIT – V

10. (a) Write and explain the basic functions of real time kernel.

(b) Define process. Draw the processor state transition diagram and explain it.

Or

11. (a) Briefly Explain about pre-emptive scheduling.

(b) What is operating system? Classify operating systems.
