

Please check whether you have got the right question paper.

- N.B:
1. All questions are compulsory.
  2. Figures to the right indicate full marks.
  3. Students answering in the regional language should refer in case of doubt to the main text of the paper in English.

**Q1. Attempt any three of the following.** **15**

- a) Define embedded system. Write features of ES
- b) Write advantages of embedded system.
- c) Classify embedded system.
- d) Explain advanced memory features and architectural features of ES.
- e) Write note on PLDs.
- f) Write note on ASICs

**Q2. Attempt any three of the following.** **15**

- a) What is quality attribute of ES? Explain non-operational quality attribute.
- b) Explain domain specific automotive embedded system.
- c) Define Bus. Compare I2C & SPI bus
- d) Explain top loading and front loading washing machine.
- e) Describe characteristics of ES
- f) Write note on automotive ES (car).

**Q3. Attempt any three of the following.** **15**

- a) Define addressing mode. Explain Direct addressing mode.
- b) List ports used in 8051. Explain port 2 and 3?
- c) Explain While loop and for loop structure.
- d) Explain data types in ES.
- e) List the features of 8051?
- f) Explain register banks used in 8051.

**Q4. Attempt any three of the following** **15**

- a) List the factors to be considered while selecting microcontroller.
- b) Explain microprocessor family with details.
- c) Write down about ROM and its types used in ES.
- d) Explain Cyclic Redundancy Check.
- e) Explain addressable areas in controller
- f) What are the basic functions of RTOS? Explain interrupt and exception handling.

**Q5. Attempt any three of the following** **15**

- a) Explain control and status register of peripherals with proper diagram.
- b) What is IDE consists of?
- c) What is the Need for Cross Compiler?
- d) Explain microcontroller firmware development cycle.
- e) Explain disassemble / Decompiler.
- f) Explain Simulator.