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SEAT No. :

P8865

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Oct-22/TE/Insem-620

T.E. (Robotics & Automation Engineering)

EMBEDDED SYSTEMS IN ROBOTICS

(2019 Pattern) (Semester - I) (311501 A)

Time : 1 Hour]

[Max. Marks : 30

Instructions to the candidates:

- 1) Answer Q.1 or Q.2 and Q.3 or Q.4.
- 2) Neat diagrams must be drawn wherever necessary.
- 3) Figures to the right side indicates full marks.
- 4) Assume suitable data if necessary.
- 5) Use of logarithmic table, slide rule or electronic pocket calculator is allowed.

Q1) a) Define an embedded system. What are the components of an Embedded System? [8]

b) Explain the Communication Interface for embedded systems. [7]

OR

Q2) a) What are the characteristics of an embedded system? Give its advantages and disadvantages. [8]

b) Write a short note on 'Safety and Reliability', 'Environmental Issues', and 'Ethical Practice' for an Embedded System. [7]

Q3) a) Explain an 8-bit Microcontroller Unit (MCU) with a block diagram. [8]

b) Explain in brief Memory for Embedded Systems with their types. [7]

OR

Q4) a) Explain the Embedded Product development life cycle. [7]

b) Explain the following terms : [8]

- i) Low Power Design
- ii) Pullup and Pulldown Resistors
- iii) DFG
- iv) FSM

