Total No. of Questions : 8]

SEAT No. :

PE2699

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T.E. (Robotics & Automation)

EMBEDDED SYSTEMS IN ROBOTICS

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

Time : 2½ Hours] *[Max. Marks : 70*

Instructions to the candidates:

1) ***Solve Q.1 or Q.2, Q.3 or Q.4., Q.5 or Q.6, Q.7 or Q.8.***
2) ***Neat Diagram must be drawn wherever necessary..***
3) ***Assume Suitable data if necessary.***
4) ***Use of Logarithmic Table, Slide rule is Electronic pocket calculator is allowed.***
5) ***Figures to the right indicates full marks.***

Q1) a) Explain Serial Communication with their types. **[8]**

b) Explain the Architecture of the kernel and task scheduler. **[9]**

OR

Q2) a) Explain UART & USART with suitable diagram. **[8]**

b) Describe various Special Function Registers. **[9]**

Q3) a) Explain Wireless sensor network with diagram. **[9]**

b) Explain Bluetooth and Zig-Bee. **[8]**

OR

Q4) a) Explain communication protocols SPI and SCI (RS232, RS485). **[9]**

b) Explain the CAN and USB protocol with suitable diagram. **[8]**

Q5) a) Explain Interprocess communication & Round-robin scheduling Algorithm. **[9]**

b) Compare Monolithic RTOS with Micro kernel RTOS. **[9]**

OR

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Q6) a) Compare General Purpose Operating System (GPOS) and RTOS with respect to: **[9]**

i) Time

ii) Memory management

b) Explain the following functions: **[9]**

i) OSQCreate()

ii) OSSemPend()

iii) OSQPost ()

Q7) a) Compare Kernel Module with Application. **[9]**

b) Explain the Role of Device Driver. **[9]**

OR

Q8) a) Explain the device driver with a simple application. **[9]**

b) What is Embedded Linux? Explain Embedded Linux development setup. **[9]**

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