

Total No. of Questions : 8]

SEAT No. :

PD-4437

[Total No. of Pages : 2

[6403]-242

T.E. (Robotics & Automation Engineering)
EMBEDDED SYSTEM IN ROBOTICS
(2019 Pattern) (Semester - V) (311501(A))

Time : 2½ Hours]

[Max. Marks : 70

Instructions to the candidates :

- 1) All questions are compulsory i.e. Solve Q.1 or Q.2, Q.3 or Q.4, Q.5 or Q. 6, Q.7 or Q.8.
- 2) Assume suitable data, if necessary.
- 3) Figures to the right side indicate full marks.
- 4) Neat diagrams must be drawn wherever necessary.

Q1) a) What is serial communication? Explain 12C in detail. [9]

b) What is wireless sensor network? Explain anatomy of sensing nodes. [9]

OR

Q2) a) Write a short note on : [9]

- i) Bluetooth
- ii) CAN

b) Explain Zig-Bee in detail. State its advantages, disadvantages and applications. [9]

Q3) a) Write a short note on : [9]

- i) Interfacing of ADC
- ii) Sensor interfacing

b) Explain the terms : [9]

- i) Constants
- ii) Data types
- iii) Variables
- iv) Function

OR

P.T.O.

Q4) a) What is switch? Explain interfacing of switch with any embedded C controller. [9]

b) Explain SFR in detail. [9]

Q5) a) Explain Architecture of Kernel in detail. [8]

b) Explain memory management of RTOS in detail. [9]

OR

Q6) a) Explain the terms : [8]

i) ISR

ii) Semaphores

iii) Task scheduler

iv) Message queues

v) Pipes

vi) IPC

vii) Context switching

viii) RTOS

b) Consider 2 tasks one is in foreground T1 and another one is in background TB. The completion time for the background task TB is 3000 ms and the processing time required for TB is 1500 ms. Compute the required processing time for T1 when p1 is 100 ms. [9]

Q7) a) Write any 5 commands of Linux with description. [8]

b) Write short note on : [9]

i) Block device driver

ii) Network device driver

OR

Q8) a) Explain linux architecture in detail. [8]

b) Write short note on : [9]

i) Linux kernel module

ii) The Role of Device Driver
