

Total No. of Questions : 12]

SEAT No. :

P1066

[4659]-73

[Total No. of Pages : 3

B.E. (Electrical)

b: EMBEDDED SYSTEM

(2008 Course) (Elective - II) (Semester - I) (403144)

Time : 3Hours]

[Max. Marks :100

Instructions to the candidates:

- 1) *Attempt any three questions from Section-I and three from Section-II.*
- 2) *Figures to the right indicate full marks.*

SECTION-I

- Q1)** a) What is an Embedded System? Explain challenges faced in embedded system. What are different categories of embedded system? Give example of each category. [8]
- b) Explain RISC and CISC processor with examples and explain the characteristics and features of ARM7 processor. [8]

OR

- Q2)** a) What is digital signal processing processor, its application and architecture of any DSP processor family with block diagram? [8]
- b) Differentiate General purpose operating system and Embedded systems. Explain Design process in Embedded system with waterfall model. [8]
- Q3)** a) Explain types of ADC, its microprocessor interfacing with diagram. [6]
- b) Explain strain gauge and their interfacing with micro controller through ADC. [6]
- c) Explain motion sensor. [6]

OR

- Q4)** a) Explain interfacing of 4 x 4 matrix keypad to microcontroller with diagram. [6]
- b) Explain interfacing of switches to the microcontroller. [6]
- c) Explain working of Temperature sensor with diagram. [6]

P.T.O.

- Q5)** a) Define solenoids and relays. Explain relay control and clamping. [8]
b) Explain BLDC motor and its driving. [8]

OR

- Q6)** a) Explain stepper motors and its bipolar versus unipolar operation of stepper motors. [8]
b) Explain the LED with constant - current drive. [8]

SECTION-II

- Q7)** a) Explain in detail following scheduling algorithms [8]
i) First in first out
ii) Round robin
iii) Round robin with priority
iv) Shortest job first
b) What is semaphores & explain in detail different types of semaphores. [6]
c) What is ISR? And it's interrupt latency? [4]

OR

- Q8)** a) Explain Difference between process, tasks and threads with example. [8]
b) What is device driver and explain device drivers for embedded devices. [6]
c) What is difference between mailbox and message queues? What is application of each? [4]
- Q9)** a) What is kernel? Explain architecture of kernel. [8]
b) Explain Real time operating system services. Explain types of RTOS. [8]

OR

- Q10)**a) Explain memory management functions of RTOS. [4]
- b) When is an RTOS necessary and when is it not necessary in the Embedded system? [4]
- c) Explain the features of RT Linux. What are the application areas where it is used? [8]

Q11)With respect to block diagram, memory processor explain a smart card design. [16]

OR

- Q12)**a) Explain Digital camera with functional block diagram. [8]
- b) Design a control system for a prototype aircraft attitude control. [8]

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