

B.E. Electrical (Electronics & Power) Engineering (Model Curriculum) Semester-VII
OEC-3-1 / FE103-1 - Embedded Systems

P. Pages : 2

Time : Three Hours



GUG/W/23/14243

Max. Marks : 80

- Notes :
1. All questions carry marks as indicated.
 2. Assume suitable data wherever necessary.
 3. Illustrate your answers wherever necessary with the help of neat sketches.

1. a) Discuss briefly about overview of embedded system architecture with suitable diagram. 8
- b) Write a note on software components embedded in a smart card. 8

OR

2. a) Explain in detail: Design life cycle in embedded system. 8
- b) Give the examples of small scale embedded system applications. 8
3. a) What is Stack? Explain different stack structure at the memory blocks. 8
- b) With the help of neat diagram explain organization of processor and memory in a system. 8

OR

4. a) Describe the memory allocation maps in the locator programs for four exemplary systems. 8
- b) Explain the different processor performance metrics. 8
5. a) Draw and explain a programming model for the multiple function pointers that are queued by the interrupt service routine. 8
- b) Write a note on Preprocessor Directives in Embedded C programs. 8

OR

6. a) Explain: 8
- i) Arrangement of the items in an ordered list.
- ii) An insertion into the list after its first item.
- iii) A deletion in the list of its first item.
- b) What are the advantages of Object-Oriented Programming (OOP). 8
7. a) Define semaphore and explain details about the types of semaphore. 8
- b) How the use of RTOS in system design facilitates the embedded systems? 8

OR

8. a) What is RMA? Explain necessary and sufficient condition of RMA. 8

- b) With different steps explain “Direct Call to an ISR by an interrupting Source and ISR sending an ISR Enter message”. **8**
- 9.** a) Explain in detail about multiple processes and threads with an application. **8**
- b) What is meant by tasks and explain various states present in the tasking process. **8**

OR

- 10.** a) Discuss in detail about inter-process communication. **8**
- b) What is $\mu\text{COS} - \text{II}$? Explain features of $\mu\text{COS} - \text{II}$. **8**
