R18

ANURAG Engineering College
(An Autonomous Institution)
IV B. Tech I Semester Regular/Supplementary Examinations, Dec-2024
EMBEDDED SYSTEMS DESIGN
(ELECTRONICS AND COMMUNICATION ENGINEERING)

Time: 3 Hours   **Max. Marks: 75**

Section – A (Short Answer type questions)			(25 Marks)
Answer All Questions	**Course Outcome**	**B.T Level**	**Marks**
1. What is the importance of system formalization in embedded system design.	CO1	L1	2M
2. Explain the characteristics of networked embedded systems.	CO1	L2	3M
3. What are the major components of the PIC 16F84A microcontroller	CO2	L1	2M
4. Explain the difference between program memory and data memory in the PIC 16F84A	CO2	L2	3M
5. Name two microcontrollers in the PIC 16F87XA family.	CO3	L1	2M
6. What is the function of the I/O ports on the PIC 16F873A	CO3	L1	3M
7. What is a semaphore in Micro/OS-II	CO4	L1	2M
8. What is a soft real-time system	CO4	L1	3M
9. What type of processor is commonly used in digital cameras	CO5	L1	2M
10. What are the security features of a smart card	CO5	L1	3M

Section B (Essay Questions)

Answer all questions, each question carries equal marks.   **(5 X 10M = 50M)**

11. A) Explain the differences between hard real-time and soft real-time embedded systems with examples.	CO1	L2	10M
OR			
B) Describe the role of hardware and software co-design in embedded system development.	CO1	L2	10M
12. A) Explain the role of the memory organization in the PIC 16F84A architecture.	CO2	L2	10M
OR			
B) Describe the different parallel ports operation for the I/O ports of the PIC 16F84A.	CO2	L2	10M
13. A) Describe the different oscillator modes available in the PIC 16F873A and their applications.	CO3	L2	10M
OR			
B) Discuss the architecture of the PIC 16F873A CPU and its advantages.	CO3	L3	10M
14. A) List the key differences between a general-purpose operating system and a real-time operating system.	CO4	L3	10M
OR			
B) Briefly discuss about the architecture of Micro/OS-II and its advantages.	CO4	L3	10M
15. A) Describe the challenges in integrating wireless communication into automobile embedded systems.	CO5	L2	10M
OR			
B) Explain the basic architecture of an embedded system used in a smart card.	CO5	L2	10M