

Reg. No. :

**Question Paper Code : 10965**

M.E./M.Tech. DEGREE EXAMINATIONS, APRIL/MAY 2019.

Second Semester

Computer Science and Engineering

MP 5291 — REAL TIME SYSTEMS

(Common to M.E. Mobile and Pervasive Computing / M.E.. Software Engineering)

(Regulation 2017)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. What are types of task class?
2. What are the characteristic of real time computing?
3. Write note on types of software requirements.
4. What are types of validation checks of software requirements?
5. Define ring buffers.
6. What is the role of Task Control Block (TCB) in memory management?
7. Differentiate real time database and general purpose databases.
8. What are two kinds of transaction abortions?
9. What are software error models?
10. Define clock synchronization.

PART B — (5 × 13 = 65 marks)

11. (a) (i) Discuss the structure of real time systems. (7)  
(ii) What the performance measures of real time systems? (6)  
Or  
(b) Give elaborate discussion on Rate-Monotonic classical uniprocessor scheduling algorithm.

12. (a) Discuss in detail about formal methods in software specification.

Or

(b) Explain how do you organize the software requirement specification and writing requirements.

13. (a) Discuss the following:

(i) Mailboxes (4)

(ii) Semaphores (5)

(iii) Deadlock. (4)

Or

(b) (i) What are overlays? Discuss the advantages and disadvantages of overlays. (7)

(ii) Discuss about various replacement algorithms in memory management. (6)

14. (a) Give elaborate discussion on concurrency control issues in real time databases.

Or

(b) Discuss elaborately on disk scheduling algorithms with suitable example.

15. (a) Explain the reliability models for hardware redundancy.

Or

(b) Discuss elaborately on fault tolerant synchronization in hardware.

PART C — (1 × 15 = 15 marks)

16. (a) Explain any three applications of real time systems with example.

Or

(b) Create the use case and class diagrams for the hospital patient monitoring system application.