322845(22)

B. E. (Eighth Semester) Examination, Nov.-Dec. 2021

(New Scheme)

(CSE, IT Engg. Branch)

REAL TIME SYSTEMS

Time Allowed : Three hours

Maximum Marks : 80

Minimum Pass Marks : 28

Note : *Attempt all questions. Part (a) is compulsory carry 2 marks in all questions. Attempt any two parts from (b), (c) and (d) carry 7 marks.*

Unit-I

1. (a) Define Real Time System.   2

   (b) Briefly explain the followings :   7

   (i) Block diagram of R.T.S.

(ii) Deadline and Execution time

(iii) Release time

(iv) Effect of tardiness

(c) Explain the classification of programming.　　7

(d) Explain the classification of RTS based on synchro-nization between external process and internal tasks of the computer.　　7

Unit-II

2. (a) Define state chart with a suitable example.　　2

(b) Discuss about SDLC. What is non-temporal transition in the software life cycle.　　7

(c) What do you mean by precedence constraints? Explain precedance graph and task graph.　　7

(d) Explain Offline and On-line scheduling and list out main differences between offline and on-line sche-duling with example.　　7

Unit-III

3. (a) Write down necessary conditions for deadlock.　　2

(b) Explain clock driven scheduling with suitable example.　　7

(c) Explain following :　　7

　(i) Rate Monotonic (RM) algorithm

　(ii) Fixed priority V/s Dynamic priority scheduling

(d) Explain the following :　　7

　(i) General structure of cyclic schedular

　(ii) Deadline Monotonic (DM) algorithm

Unit-IV

4. (a) Explain Little's law.　　2

(b) Differentiate between fault and failure.　　7

(c) What is RAC? Discuss the effects of resource contention?　　7

(d) Give advantages and disadvantages of priority ceiling protocol.　　7

Unit-V

5. (a) What is Software Heisenberg uncertianity principle. 2

(b) What is Priority Inversion? Explain how it related
with critical section. 7

(c) Explain the use of priority inheritance protocol in
dynamic priority system. 7

(d) Explain following : 7

(i) Stack stealing

(ii) Differable server