Printed Pages : 1 **Roll No.** | | | | | | | | | | | **NEC013R**

B. TECH.

THEORY EXAMINATION (SEM–VI) 2016-17

REAL TIME SYSTEM

Time : 3 Hours ***Max. Marks : 100***

Note : *Be precise in your answer. In case of numerical problem assume data wherever not provided.*

SECTION - A

1. Explain the following **(10 x 2 = 20)**

a) Differentiate between embedded system and real time systems

b) Important issues in Real Time computing

c) Periodic task

d) Sporadic task

e) Temporal constraints

f) Why task synchronization is required in RTOS?

g) Differentiate between Predictability and validation

h) Heterogeneous Processors

i) Local and Remote resources

j) Advantages of multihop protocol.

SECTION - B

2 Attempt any five of the following **(10 x 5 = 50)**

a) Explain RM (Rate Monotonic) scheduling algorithm with an example and equation.

b) Describe a bin packing assignment algorithm for EDF (Earliest Deadline First.

c) What are the issues to be considered in real time computing? Explain any two examples for real time processing

d) Differentiate between fixed priority and dynamic priority scheduling algorithms.

e) Explain why predictability is considered an important requirement of a Real-Time system? How this requirement can be enforced?

f) Give the comparison between RMFF and RMST algorithms in detail.

g) List the functions and activities of an RTOS.

h) Define notion of clock and clock synchronization in context of real time systems.

SECTION - C

Attempt any two of the following **(15 x 2 = 30)**

3. What do you mean by fault tolerance? How faults are classified according to their temporal behavior and output behavior? Compare between contentions based protocol and token based protocol.

4. Differentiate between Real Time Operating System and general purpose operating systems. Explain the working of VRTX real time operating system.

5. Write the structure of a real time system and explain its working in detail.