Printed pages: 02 **Sub Code: NEC 013 R**

Paper Id: **131628** **Roll No:** | | | | | | | | | | |

B.TECH.
(SEM-VI) THEORY EXAMINATION SESSION 2017-18
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. Attempt all of the following questions: **(10 x 2 = 20)**

(a) What are critical and non-critical tasks?

(b) What do you mean by timing constraints?

(c) Define the term performability.

(d) Write down major differences between soft and hard real time system.

(e) What do you understand by the term Pipelining?

(f) Define IRIS tasks.

(g) What is Real Time Operating System?

(h) What is redundancy?

(i) Explain dynamic scheduling.

(j) Explain main function of RTOS kernel.

SECTION – B

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

2. Explain the main features of HART OS and features of VRTX.

3. What do you mean by static scheduling and dynamic scheduling? Explain with examples. Give the advantages and disadvantages of static and dynamic scheduling.

4. Why is VRTX (Virtual real Time Executive) known as Real Time Operating System? Explain the general architecture of VRTX.

5. State the characteristics of a Good Real Time operating system. What are issues in design of Real Time Operating Systems?

6. What are durational timing constraints? What are minimum and maximum timing constraints and how are they different from durational constraints?

7. What are the issues involved in RTS software development? Explain in brief.

8. What do you mean by soft and hard RT communication system? Describe in detail.

9. Discuss basic features and governing rules of Preemptions Ceiling Protocol and mention its relative merits over Priority Ceiling protocol.

SECTION – C

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

10. What are Real Time Database systems? Draw the general model of Real Time Database System. What is Real Time Transaction? Why is temporal correctness criterion adhered to determine correctness of a schedule?

11. What are the POSIX standards? Explain the Unix Real Time Operating System. Explain its feature in brief.

12. What are the protocols used for Real Time Communication? Explain the contention based protocol and Virtual Time Carrier Sensed Multiple Access Protocol (VTCSM A protocol).