Mid-West University

Examinations Management Office

Semester End Examination 2081

Bachelor level/ B. Sc. (CSIT)/ 7th Semester **Full Marks: 60**

Time: 3 hours **Pass Marks: 30**

Subject: Real Time System (COM472)

Candidates are required to give their answers in their own words as far as practicable. Figures in the margins indicate marks.

Group A

Very short answer questions (attempt *All*). **[8x2 = 16]**

1. How real time system differ from other system?
2. Define digital controller.
3. What do you mean by timing constraint?
4. What is periodic task?
5. Define relative deadline.
6. What is data dependency?
7. What do you mean by algorithm?
8. Define RT Linux.

Group B

Short answer questions (attempt *Any Five*). **[5x4 = 20]**

9. Explain typical real time system with appropriate block diagram.
10. How tracking, gating and data association works in radar system? Explain.
11. Mention relative and absolute deadline with example.
12. Explain commercial embedded operating system.
13. What do you mean by priority inversion? When does resource conflict occurs?
14. What are the different parameters of the real time work load?

Group C

Long answer questions (attempt *Any Three*). **[3x8 = 24]**

15. Explain various types of real time system with example.
16. What do you mean by aperiodic jobs? Explain Precedence constraints and data dependency.
17. What do you mean by priority inheritance protocol algorithm? Schedule the following jobs with priority inheritance protocol algorithm with given conditions:

Jobs	r_i	e_i	Priority (π_i)	Resources
J1	7	3	1	NCS - 1, CS TYPE1 - 1, NCS - 1
J2	5	3	2	NCS - 1, CS TYPE2 - 1, NCS - 1
J3	4	2	3	NCS - 2
J4	2	6	4	NCS - 1, CS TYPE1 - 2, CS TYPE2 – 1, CS TYPE1 – 1, NCS - 1
J5	0	6	5	NCS - 1, CS TYPE2 - 4, NCS - 1

18. What do you mean by deferrable servers? Explain various approaches to scheduling aperiodic jobs.

The End