K. J. Somaiya Institute of Technology, Sion, Mumbai-22
(Autonomous College Affiliated to University of Mumbai)

Nov – Dec 2025
(B. Tech) Program: EXTC Scheme IIB
Regular Examination: LY Semester: VII
Course Code:EXDLC7033 and Course Name: **Embedded Systems & RTOS**
Date of Exam: 25/11/2025, (Tuesday) Duration: 02.5 Hours Max. Marks: 60

Instructions:
(1)All questions are compulsory.
(2)Draw neat diagrams wherever applicable.
(3)Assume suitable data, if necessary.

Q. No.	Question	Max. Marks	CO	BT level
Q 1	Solve any **two** questions out of three: (05 marks each)	10		
a)	Differentiate between RISC and CISC		CO2	U
b)	Explain RS-232C communication in detail.		CO3	U
c)	What are the advantages and disadvantages of synchronous vs. asynchronous communication in IPC?		CO5	U
Q 2	Solve any **two** questions out of three: (05 marks each)	10		
a)	Differentiate between process and thread.		CO4	U
b)	Compare and contrast mutexes and semaphores.		CO5	U
c)	What is an FSM? Explain with an example.		CO6	U
Q.3	Solve any **two** questions out of three. (10 marks each	20		
a)	Explain all design metrics of embedded systems.		CO1	U
b)	Draw and Explain SPI bus in detail also compare with I2C bus.		CO2	U
c)	Explain following Bluetooth architectures 1. Piconet Network and 2. Scatternet Network		CO3	U
Q.4	Solve any **two** questions out of three. (10 marks each)	20		
a)	What is meant by shared data? Explain the various problems present in shared data. How can it be overcome?		CO4	U

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b)	How does the Producer-Consumer problem illustrate synchronization challenges?		CO5	U
c)	Explain Embedded Product Development Life Cycle.		CO6	U

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