Time: 2 & 1/2-hour   Max. Marks: 80
Sample Question Paper ES & RTOS MAY_2022
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1.	In rate monotonic scheduling
Option A:	shorter duration job has higher priority
Option B:	longer duration job has higher priority
Option C:	priority does not depend on the duration of the job
Option D:	priority is inversely proportional to occurrence of a task
2.	Usually ------------ sensors are selected as non-contact temperature sensors.
Option A:	Thermal
Option B:	Infrared
Option C:	Ultraviolet
Option D:	Proximity
3.	Which testing method is known as Black Box testing?
Option A:	A method which uses black colored box
Option B:	A method which does not check behavior.
Option C:	A method which does not check for errors.
Option D:	A method which tests the functionality of application, without peering into its internal structures or workings.
4.	One of the major drawbacks of assembly language programming over C is
Option A:	lower memory requirements
Option B:	program executes faster
Option C:	codes are not portable
Option D:	hardware specific instructions are available
5.	What is the importance of deadline in space crafts and planetary rovers?
Option A:	Missing a deadline is considered a buffer delay.
Option B:	Missing a deadline is considered as less efficient
Option C:	Missing a deadline is considered a system failure.
Option D:	Missing a deadline is considered as real time latency.
6.	Which determines the sequence and the associated task's priority?
Option A:	scheduling algorithm
Option B:	ready list
Option C:	task control block
Option D:	application register
7.	Simulation in embedded system is done to
Option A:	to check robustness of system
Option B:	test software
Option C:	test hardware
Option D:	to check feasibility
8.	Which diagram indicates the behavior of the system as a consequence of

	external events?
Option A:	data flow diagram
Option B:	workflow diagram
Option C:	control specification diagram
Option D:	state transition diagram
9.	Which of the following is not a object of Kernel
Option A:	Semaphore
Option B:	Mailbox
Option C:	microcontroller
Option D:	Mutex
10.	For a commercial embedded product, the unit cost is high during
Option A:	Product discontinuing
Option B:	Product growth
Option C:	Product maturity
Option D:	Product launching

Q2. (20 M)	Solve any Two Questions out of Three 10 marks each
A	Compare GPOS and RTOS. List and discuss the functions of RTOS Kernel. Analyze the Role of TCB in RTOS Kernel.
B	Discuss the significance of low power mode in Cortex M3 microcontrollers.
C	List and explain FreeRTOS Functions for any 4 RTOS kernel objects of following: 1)tasks 2)semaphore 3)mailbox 4)mutex 5)message queue 6)memory and 7)time

Q3. (20 M)	Solve any Two Questions out of Three 10 marks each
A	Explain Hardware and Software co-design issues in designing an embedded system.
B	What is priority Inversion? How will you resolve it?
C	Discuss with suitable diagrams and/or Graphs significance of time to prototype and time to market.

Q4. (20 M)	Solve any Two Questions out of Three 10 marks each
A	Draw and Explain with neat diagram a suitable program model for Calculating rootsof Quadratic equation and state its types.
B	Design "Elevator control system" with respect to requirement analysis, program model, and hardware, software and real time issues.
C	Discuss Spiral model implementation in the case study of "Seat Belt Warning System.