Seat No:_____

GANPAT UNIVERSITY

B. TECH SEM. VII ELECTRONICS & COMMUNICATION ENGINEERING

EXAMINATION NOV/DEC-2011

EC 705(A) EMBEDDED SYSTEMS

TIME: 3 HOURS **TOTAL MARKS: 70**

INSTRUCTIONS:

1. Attempt all questions.
2. Answers to the two sections must be written in separate answer books.
3. Figures to the right indicate full marks.
4. Assume suitable data, if necessary.

SECTION-I

Que.-1	**(A)**	An analog input signal is given whose voltage range from 0 to 15V and an 8 bit digital encoding. Calculate the correct encoding of 6V.	**5**
	(B)	Elaborate the specialities of embedded systems.	**4**
	(C)	Elucidate serial communication of embedded system.	**3**
		OR	
Que.-1	**(A)**	Explain the working of memory to read and write data in detail with net diagram.	**4**
	(B)	Discuss watchdog timer with the help of ATM machine.	**4**
	(C)	Enlist the applications of embedded systems.	**4**
Que.-2	**(A)**	Write a brief note on each: (1) OTP ROM (2) EPROM (3) Flash memory (4) PSRAM	**8**
	(B)	List out and explain different timer/counter structures.	**3**
		OR	
Que.-2	**(A)**	Explain controlling of DC motor using pulse width modulators.	**3**
	(B)	Write brief note on following building block: (1) CPU architecture (2) ADC & DAC (3) Display devices (4) Debug port	**8**
Que.-3	**(A)**	Provide differences between CISC and RISC.	**2**
	(B)	Explain real time embedded systems.	**3**
	(C)	List out and explain recent trends in embedded systems.	**4**
	(D)	Define and discuss memory write ability and storage permanence.	**3**

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SECTION-II

Que.-4	(A)	Define following terms: (1) Live lock (2) Semaphore (3) Multitasking (4) Thread (5) Signal	5
	(B)	Define Arbitration, and explain various methods to handle the arbitration.	5
	(C)	Provide differences between monolithic kernel and micro kernel.	2
		OR	
Que.-4	(A)	Enlist the differences between Hard Real Time and Soft Real Time Operating Systems.	3
	(B)	Define the following terms: (1) bit error (2) vectored interrupt (3) polling (4) firmware (5) ASIP	5
	(C)	Elaborate interrupt driven I/O using vectored interrupt, also summarize the flow of actions with diagrams.	4
Que.-5	(A)	Discuss the different types of preemptive scheduling algorithms. State the merits and demerits of each.	5
	(B)	What is a device driver? Explain its role in the OS context.	6
		OR	
Que.-5	(A)	Define task scheduling? Discuss various scheduling algorithms in detail.	6
	(B)	Describe the strobe and handshaking control methods for data transfer in detail.	3
	(C)	What is task control block (TCB)? Explain the structure of TCB.	2
Que.-6	(A)	Explain the priority inversion problem and explain how it can be solved?	6
	(B)	Discuss the basic functions of real time kernel.	6

End of Paper