KUMARAGURU
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M.E DEGREE EXAMINATIONS: JUNE 2017

(Regulation 2015)

Second Semester

EMBEDDED SYSTEM TECHONOLIGIES

P15EST202 : Embedded Control Systems

COURSE OUTCOMES

CO1: Describe the basics and importance of real-time systems hardware with software.

CO2: Demonstrate the interfacing of I/O Devices and Communication devices.

CO3: Write Embedded C programming for practical implementations of motors and ability to solve the problems in embedded systems.

Time: Three Hours **Maximum Marks: 100**

Answer all the Questions:-

PART A (10 x 1 = 10 Marks)

1. Match the following CO1 [K_2]

Memory size	No of address lines required
A. 1M x 4	**1.** 16
B. 1K by 8	**2.** 10
C. 64K x 32	**3.** 22
D. 4M x 16	**4.** 20

	A	B	C	D
a)	1	2	3	4
b)	2	4	3	1
c)	2	1	4	3
d)	4	2	1	3

2. An embedded system is combination of CO1 [K_1]

a) Hardware and software b) Memory and processor

c) RTC and crystal oscillator d) IO lines and peripherals

3. The most commonly used display system is CO2 [K_2]

a) 7-segment b) CRT

c) LED d) LCD

4. Hardware interrupts of 8085 microprocessor is CO3 [K_1]

a) RST0 b) INTR

c) TRAP d) Both b and c

5. What is the major advantage of the R/2R ladder digital-to-analog (DAC) as compared to a binary-weighted digital-to-analog DAC converter? CO2 [K_2]

(i) It only uses two different resistor values.

(ii) Does not require larger resistor value

(iii) Resistor selection is difficult

(iv) Faster conversion

Which are all the statements are correct?

a) i, ii correct b) i, iii correct

c) iii, iv correct d) ii, iv are correct.

6. Device that automatically detecting the port CO1 [K_2]

a) USB connected devices b) Serial port connected devices

c) Parallel port connected devices d) Both b and c

7. Number of nodes in RS485 interface is_____ CO1 [K_2]

a) 32 b) 23

c) 11 d) 28

8. Assertion (A): Telephony is the technology associated with the electronic transmission of voice CO1 [K_3]

Reason (R) : Internet telephony uses the Internet

a) A is false but R is true b) A is true but R is false.

c) Both A and R are correct and R s the correct explanation of A d) Both A and R are correct and R is the not correct explanation of A

9. Rs232 DB connector has _____pins CO1 [K_1]

a) 8 b) 9

c) 10 d) 12

10. h-bridge operation : to change the direction of rotation of DC motor. CO1 [K_3]

i) supply is given to H-bridge

ii) switching sequence program is loaded in the microcontroller

iii) gate pulse to the switches are given by microcontroller

iv) motor can be rotated in required direction

Find the correct sequence?

a) iii, i, ii, iv b) ii, iii, i, iv

c) ii, i, iii, iv d) ii, i, iii, iv

PART B (10 x 2 = 20 Marks)

11. Compare address and data lines. CO1 [K_1]

12. List the applications of PPI. CO2 [K_1]

13.	What is the use of keyinit ( ) code?	CO3	[K_2]
14.	What is ISR? Why it is required?	CO3	[K_1]
15.	Draw interrupt vector table?	CO3	[K_1]
16.	List the applications of DAQ.	CO1	[K_1]
17.	List the features of RS232 interface?	CO2	[K_1]
18.	How many drivers and receivers RS485 has?	CO2	[K_2]
19.	Define multiclouser problem?	CO1	[K_1]
20.	Draw the schematic of H-bridge?	CO1	[K_1]

PART C (10 x 5 = 50 Marks)

21.	Write short notes on Bit masking.	CO1	[K_2]
22.	With necessary diagram explain switch input detection.	CO2	[K_2]
23.	Write short notes on Time delay of clock.	CO1	[K_2]
24.	What is PWM and state its importance.	CO1	[K_1]
25.	Write short notes on interrupts and its importance?	CO3	[K_1]
26.	Discuss the R-2R ladder Digital to Analog converter?	CO2	[K_2]
27.	Compare synchronous and asynchronous communication?	CO2	[K_2]
28.	Mention the advantages of RS 485 interface that overcomes the drawback of RS 232.	CO2	[K_1]
29.	Write short notes on H-Bridge?	CO1	[K_2]
30.	Discuss the importance of Embedded systems in telephonic systems?	CO1	[K_1]

Answer any TWO Questions

PART D (2 x 10 = 20 Marks)

31.	With necessary diagram explain the role of embedded system in the washing machine.	CO1	[K_3]
32.	Explain the RS-485 serial communication interface with necessary block diagram.	CO2	[K_3]
33.	With neat sketch explain the inventory control system.	CO1	[K_2]

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