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M.E DEGREE EXAMINATIONS: JUNE 2015

(Regulation 2014)

Second Semester

EMBEDDED SYSTEM TECHNOLOGIES

P14EST202**:** Embedded Control Systems

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

Answer all the Questions:-

PART A (10 x 1 = 10 Marks)

1. Match the following [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 must have [K_1]

a) processor b) Processor and IO lines

c) Processor and memory d) Hard disk

3. The most efficient display system [K_2]

a) LCD b) LED

c) CRT d) 7-segment

4. Hardware interrupts of 8085 microprocessor is [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? [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 [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_____ [K_2]

a) 32
b) 23
c) 11
d) 28

8. Assertion (A): Telephony is the technology associated with the electronic transmission of voice [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 [K_1]

a) 8
b) 9
c) 10
d) 12

10. H-bridge operation : to change the direction of rotation of DC motor. [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.	Define Embedded system.	[K_1]
12.	State Bit masking.	[K_1]
13.	What is the use of keyinit ( ) code?	[K_2]
14.	What is keyboard debouncing?	[K_1]
15.	Draw interrupt vector table.	[K_1]
16.	State port off set.	[K_1]
17.	List the demerits of RS 232 interface.	[K_1]
18.	How many drivers and receivers RS485 has?	[K_2]
19.	Define multiclouser problem.	[K_1]
20.	Draw the schematic of H-bridge.	[K_1]

PART C (10 x 5 = 50 Marks)

21.	Compare data lines and Address Lines.	[K_2]
22.	With neat sketch explain IC 742 LS 244.	[K_2]
23.	Draw and explain the Matrix key board driver flow diagram.	[K_2]
24.	Write short notes on Auto repeat of matrix key board scanning algorithm.	[K_1]
25.	Write short notes on interrupts and its importance.	[K_1]
26.	Discuss the R-2R ladder Digital to Analog converter.	[K_2]
27.	Compare synchronous and asynchronous communication.	[K_2]
28.	With neat sketch explain serial buffered I/O.	[K_1]
29.	Write short notes on H-Bridge.	[K_2]
30.	Discuss the importance of Embedded systems in telephonic systems.	[K_1]

PART D (2 x 10 = 20 Marks)

31.	Explain with a real time example how hardware of an embedded system controlled by software.	[K_3]
32.	Write an Embedded C program to change the direction of rotation of DC motor using H-bridge with necessary diagram.	[K_3]

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