

Hall Ticket Number:

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Code No. : 16612

VASAVI COLLEGE OF ENGINEERING (Autonomous), HYDERABAD**B.E. (I.T. : CBCS) VI-Semester Main Examinations, January-2021****Embedded Systems**

Time: 2 hours

Max. Marks: 60

*Note: Answer any NINE questions in Part-A and any THREE from Part-B***Part-A (9 × 2 = 18 Marks)**

Q. No.	Stem of the question	M	L	CO	PO
1.	Draw the PSW format of the 8051 Micro Controller and explain each bit	2	2	1	1
2.	Why the Port 0 of 8051 Micro Controller having internal pull up resistors rather than other ports? Justify	2	3	1	1
3.	Write how ARM design deviates from pure RISC characteristics.	2	3	2	1
4.	Distinguish between ARM7 and ARM9 pipeline architecture.	2	2	2	1
5.	Write the important characteristics of RTOS	2	1	3	1
6.	Draw the task state diagram in RTOS environment	2	1	3	1
7.	Define a) Cross compiler b) Logic probe	2	2	4	1
8.	Write the advantages and applications of CAN protocol	2	1	4	1
9.	List out the characteristics of IoT	2	2	5	1
10.	Write the basic building blocks of IoT device	2	2	5	1
11.	Draw the TCON register format.	2	1	1	1
12.	Mention features of thumb instruction set of ARM .	2	1	2	1
Part-B (3 × 14 = 42 Marks)					
13. a)	Write an ALP to generate a square wave with ON time of 3ms and OFF time of 10ms on all pins of Port 1. Assume XTAL=11.0592 MHz	7	3	1	2
b)	Design an interface circuit for connecting 16K RAM and 32K PROM to 8051 Micro controller	7	3	1	1
14. a)	Illustrate Thumb to ARM conversion process with a neat diagram	7	2	2	2
b)	If r0=0x00000000 r1=0x00090000 then, how r0 and r1 effects after the execution of the following instructions i)LDR r0, [r1, #4] ii) LDR r0, [r1, #4] iii) LDR r0, [r1], #4 iv) LDR r0, [r1]	7	3	2	2

15. a)	Briefly explain about handling of interrupts in RTOS environment	7	2	3	1
b)	Compare and contrast message queues and pipes. Also mention their pit falls.	7	2	3	1
16. a)	Explain design cycle in development phase of embedded system	7	2	4	1
b)	Draw the I ² C protocol format and explain the each bit	7	2	4	1
17. a)	Explain the IoT communication models and its API in detail.	7	1	5	1
b)	Discuss about Raspberry Pi board features used for various IoT applications	7	2	5	1
18. a)	Write an ALP to transfer the message "ECE" Serially at 9600 baud rate with 8 data bit and 1 stop bit. Do this continuously	6	3	1	2
b)	Write an assembly language program for transferring block of data from one memory to other location using ARM7	8	3	2	1
19.	Answer any <i>two</i> of the following:				
a)	Discuss important features and task related commands in VxWorks	7	2	3	1
b)	Briefly explain the software tools for development of embedded systems.	7	2	4	1
c)	Write about IoT enabling technologies in automation industry applications	7	2	5	1

M: Marks; L: Bloom's Taxonomy Level; CO: Course Outcome; PO: Programme Outcome

S. No.	Criteria for questions	Percentage
1	Fundamental knowledge (Level-1 & 2)	60
2	Knowledge on application and analysis (Level-3 & 4)	40
3	*Critical thinking and ability to design (Level-5 & 6) (*wherever applicable,)	0
