

Hall Ticket Number:

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Code No. : 16648 AS

**VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS), HYDERABAD**

Accredited by NAAC with A++ Grade

**B.E. (I.T.) VI-Semester Advanced Supplementary Examinations, July-2023**

**Embedded Systems and IoT**

Time: 3 hours

Max. Marks: 60

Note: Answer all questions from **Part-A** and any **FIVE** from **Part-B**

**Part-A (10 × 2 = 20 Marks)**

Q. No.	Stem of the question	M	L	CO	PO
1.	Why Microprocessor is best for Embedded system Design?	2	1	1	1
2.	How Real time Operating System is different from Operating System?	2	1	1	1
3.	What is the role that microcontroller will play in ADC?	2	1	2	1
4.	Give the status bits of ARM –CPSR register.	2	1	2	1
5.	Relate Sensors and Actuators based on their working	2	1	3	1
6.	List out the IoT Enabling Technologies.	2	2	3	1
7.	Mention various peripherals available on Raspberry Pi.	2	1	4	1
8.	Write the differences between M2M and IoT.	2	2	4	1
9.	Illustrate the steps in SoC Design flow.	2	1	5	1
10.	Explain the concept of PS and PL in Zynq SoC .	2	1	5	1
<b>Part-B (5 × 8 = 40 Marks)</b>					
11. a)	Discuss how Embedded systems are different from other computing Systems. Illustrate the Challenges of Embedded Systems.	4	2	1	1
b)	With neat sketch explain the functional Block diagram of 8051 Microcontroller.	4	2	1	1
12. a)	Describe the interfacing mechanism with 8051 by using an example.	4	3	2	3
b)	Illustrate ARM Arithmetic Instructions with suitable examples.	4	3	2	1
13. a)	Discuss the Protocols of IoT Application Layer.	4	2	3	1
b)	Draw IoT Level-5 diagram and explain with a suitable example.	4	2	3	1

14. a)	Interpret IoT Design methodology by using a Case study.	4	4	4	1
b)	Implement interfacing of PIR sensor with Raspberry Pi in python.	4	3	4	3
15. a)	What is meant by SoC? Outline Zynq SoC Architecture.	4	2	5	1
b)	Explain in detail the architecture of APU unit of Zynq.	4	3	5	1
16. a)	Differentiate Task and Process. Explain the different inter task communication mechanisms.	4	2	1	1
b)	Outline the Interrupt mechanism in 8051 Microcontroller.	4	3	2	2
17.	Answer any <i>two</i> of the following:				
a)	Write a short on the role of wireless sensor networks in IoT.	4	2	3	1
b)	Summarize the important features of I2C, CAN and SPI.	4	3	4	2
c)	Outline on Embedded platforms for IoT.	4	3	5	1

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

i)	Blooms Taxonomy Level – 1	20%
ii)	Blooms Taxonomy Level – 2	40%
iii)	Blooms Taxonomy Level – 3 & 4	40%

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