Hall Ticket Number:

Code No. : 16147 (J) N/O

VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS), HYDERABAD
Accredited by NAAC with A++ Grade
B.E. VI-Semester Main & Backlog Examinations, May/June-2023
Internet of Things and Applications (OE-IV)

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	PSO
1.	Define IoT. List any four characteristics of IoT?	2	1	1	1	2
2.	Distinguish between M2M and IoT with one example?	2	2	1	1	2
3.	What are Real-world design constraints of the Internet of Things?	2	1	2	1	1
4.	Justify the necessity of data representation and visualization in IoT?	2	2	2	2	1
5.	Distinguish between different layers of IoT protocols?	2	2	3	1	3
6.	List the Pros and Cons of mDNS? Is mDNS a security risk?	2	2	3	1	3
7.	Compare the Raspberry Pi and a normal computer?	2	2	4	1	1
8.	Which programming language is used for Raspberry Pi? Justify the answer?	2	3	4	2	1
9.	Categorize the basic elements of IoT in smart cities?	2	2	5	1	2
10.	How IoT is embedded into the autonomous vehicles?	2	3	5	1,6,7	2

Part-B (5 × 8 = 40 Marks)

		M	L	CO	PO	PSO
11. a)	Explain the IoT architecture with a suitable diagram?	4	2	1	1	2
b)	What is a gateway example in IoT? What are the devices used in IoT and list the functions of IoT gateways?	4	1	1	1	3
12. a)	Define data management in IoT? How does IoT process data? What is the role of big data management in IoT?	4	4	2	1,2	1
b)	Define power conditioning in the context of IoT, and justify its importance for reliable device operation?	4	3	2	1,2	1
13. a)	Why MQTT is used in IoT? Distinguish between HTTP and MQTT?	4	3	3	1,2	3
b)	What is a CoAP? What are the features of CoAP? Does CoAP have memory, support multicast and provide security? Justify the answer?	4	4	3	1,6	3

		M	L	CO	PO	
14. a)	What is a Raspberry Pi used for? Which software is used for Raspberry Pi? Why Broadcom BCM2835 SoC used in Raspberry Pi?	5	1	4	1	1
b)	Why Python programming is the first choice for the Raspberry Pi language than C or C ++?	3	2	4	1	1
15. a)	Illustrate how can IoT lead to the development of smart cities? What are the advantages of IoT in smart cities?	4	4	5	1,2,6	2
b)	Justify the necessity of connected vehicles in IoT? How are connected cars using cloud computing?	4	4	5	1,2,7	3
16. a)	Explain M2M IoT Architecture with a suitable diagram?	4	1	1	1	2
b)	List any four energy harvesting techniques that are being used in IoT domain and explain their working principle?	4	2	2	1	1
17.	Answer any *two* of the following:					
a)	Explain AMQP architecture with a suitable diagram?	4	3	3	1,2	2
b)	List the features of Raspberry pi? Write a python program to control LED connected to Raspberry Pi using a push button switch?	4	3	4	1	1
c)	How is IoT used in healthcare? How IoT is transforming the healthcare industry?	4	4	5	1,6,7	3

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

i)	Blooms Taxonomy Level – 1	20%
ii)	Blooms Taxonomy Level – 2	30%
iii)	Blooms Taxonomy Level – 3 & 4	50%

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