Hall Ticket Number:

Code No. : 16448 (C) N

VASAVI COLLEGE OF ENGINEERING *(AUTONOMOUS)*, HYDERABAD

Accredited by NAAC with A++ Grade

B.E. (E.C.E.) VI-Semester Main Examinations, May/June-2023

Wireless Sensor Networks (PE-I)

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.	Mention challenges while designing the wireless sensor networks.	2	1	1	1	2
2.	Specify the applications of mobile Ad hoc networks.	2	1	1	2	2
3.	Differentiate mote and node used in WSN.	2	2	2	2	2
4.	Justify the need for multi hop networks in WSN.	2	2	2	2	2
5.	Define wake up radio concept.	2	1	3	1	2
6.	Explain how to overcome expose terminal problem.	2	1	3	1	2
7.	Why time synchronization is required in sensing the network.	2	2	4	2	2
8.	Explain how clustering helps in topology control.	2	1	4	1	2
9.	Draw Berkeley motes and its applications.	2	1	5	1	2
10.	Write various node level simulators.	2	2	5	1	2
	Part-B (5 × 8 = 40 Marks)					
11. a)	Compare and contrast various enabling technologies in Wireless sensor networks.	4	3	1	2	2
b)	Explain the characteristics and requirements of Wireless sensor networks.	4	2	1	1	2
12. a)	Design the single node architecture of Wireless sensor networks.	4	3	2	2	2
b)	Illustrate various programming paradigms with examples.	4	3	2	2	2
13. a)	Discuss IEEE 802.15.4 MAC protocol along with frame formats.	4	2	3	1	2
b)	Classify various MAC routing protocols used in Wireless sensor networks.	4	1	3	1	2

Contd... 2

14. a)	Describe various merits to measure efficiency of topology control algorithms.	4	2	4	1	2
b)	Draw and explain localization taxonomy with examples.	4	2	4	1	2
15. a)	Illustrate various programming challenges in WSN.	4	3	5	1	2
b)	Discuss state centric programming with an example.	4	2	5	1	2
16. a)	Compare the key characteristics VANETs and MANETs.	4	3	1	1	2
b)	Illustrate various gateways with an example in wireless sensor networks.	4	2	2	1	2
17.	Answer any ***two*** of the following:					
a)	Draw and explain ZIGBEE protocol structure and frame format.	4	2	3	1	2
b)	Discuss various examples for sensor tracking.	4	2	4	1	2
c)	Mention the design specifications of Tiny OS operating system.	4	3	5	1	2

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

i)	Blooms Taxonomy Level – 1	20%
ii)	Blooms Taxonomy Level – 2	52.5%
iii)	Blooms Taxonomy Level – 3 & 4	27.5%

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