



**NAVVRACHANA
UNIVERSITY**

a UGC recognized University

School: School of Engineering and Technology

Program: BTech-Information Technology

Year: 4th **Semester:** 5th

Examination: End Semester Examination

Examination year: December - 2021

Course Code: IT317

Course Name: Fundamentals of Internet of Things

Date: 09/12/2021

Marks: 40

Time: 8:30 AM to 10:30 AM

Total Pages: 2

Instructions for students:

1. This question paper consists of five main questions with their associated sub-questions
2. Write answers for questions belonging to same question/sub-question together. Do not answer questions haphazardly
3. Make assumptions wherever required
4. Manage time effectively during examination so that paper is completed in specified duration

Q 1.	Attempt the following questions: [1 mark each]	CO	BT	Marks
[A]				
1.	A set of military vehicles equipped with sensor nodes moving towards a target can be called ____. a. Stationary WSN b. Mobile WSN c. Both A and B d. None of the above	3	1,2,3	1
2.	Which of the following protocols are used in M2M access network? a. HTTP b. TLS c. WCDMA d. All of the above	2, 4	1,2	1
3.	_____ APIs are intermediaries between different layers of M2M systems. a. GPS b. Machine APIs c. AGP d. RESTful	4	1,2	1
4.	The processor used in sensor node can be _____. a. Nano processor b. General purpose Microprocessor c. None of the options d. DSP	1,3	1,2	1
5.	A node behaving maliciously by assuming different identities in a WSN is a victim of the ____ attack. a. Sinkhole b. Sybil c. Blackhole d. Hello	3	1,2,3	1
Q 1.	Describe the following terms in short (Any 5): [1 mark each]			(5)
[B]				
1.	Dumb node	3	1,2	1
2.	Microcontroller	1,3	1,2	1
3.	Low-End M2M node	4	1,2	1
4.	Multi-hop communication	2,3	1,2,3	1
5.	M2M communication	4	1,2	1
6.	Gateway device	2,4	1,2	1
Q 2.	Short answer questions [Any 5]: [2 marks each]			(10)
1.	Explain elements of a sensor node.	1,3	1,2	2
2.	What are the communication patterns that are observed in WSN? Enlist and Explain.	2,3	1,2,3	2
3.	Explain application layer that is a part of M2M service platform.	2,4	1,2	2
4.	Which are the different attacks that can be launched on a WSN? Enlist and explain.	3	1,2	2
5.	Compare types of M2M nodes IP based and Non-IP based	4	1,2	2
6.	What are the different modes of node detection in WSN.	3	1,2,3	2
Q 3.	Answer in detail [Any 4]: [5 marks each]			(20)
1.	Enlist any five applications of M2M.	1,4	1,2,3	5

2.	What is target tracking? Explain a scenario that target tracking can be used. Elicit how target tracking can be helpful in security of living beings.	3	1,2,3,4	5
3.	Explain with example a scenario where underwater mobile WSN can be used.	1,3	1,2,3	5
4.	What are the different ways in which a node may behave in a WSN scenario? Comment on the impact it will have on the overall working of the network.	2,3	1,2,3,4	5
5.	Explain how M2M can be used as a part of cyber physical system for healthcare.	1,4	1,2,3	5
----- <i>End of Question Paper</i> -----				
----- <i>All the Best</i> -----				