MAULANA ABUL KALAM AZAD UNIVERSITY OF TECHNOLOGY, WEST BENGAL

Paper Code : PEC- CS801E/PECIT801D Internet of Things

UPID : 008270

Time Allotted : 3 Hours   *Full Marks :70*

The Figures in the margin indicate full marks.

Candidate are required to give their answers in their own words as far as practicable

Group-A (Very Short Answer Type Question)

1. Answer *any ten* of the following :   [1 x 10 = 10]

(I)   Sound waves are similar to light waves in all aspects. True or False.

(II)   Mass sensors are a combination of SAW. True or False.

(III) Semiconductor used in sensors will be _____

(IV) Pyro electric coefficient of PVDF will be _____

(V)   Input signal to smart sensor is fed from _____

(VI) Tungsten filament lamp is a _____ source of IR radiation.

(VII) Quartz can be used as bio sensors. True or False.

(VIII) Heater power in thick film hybrid technology is up to _____ mW.

(IX) Permalloy are most suitable for _____

(X)   Non contacting type bio sensors are _____

(XI) Polymer thick film can act as a sensing element. True or False.

(XII) Basically, sound waves are _____

Group-B (Short Answer Type Question)

Answer *any three* of the following :   [5 x 3 = 15]

2. What are the environmental monitoring types?   [5]

3. What is an IoT Sensor?   [5]

4. What are different types of smart sensors?   [5]

5. Describe the advantages and disadvantages of smart sensors.   [5]

6. Describe the layers of IoT protocol stack.   [5]

Group-C (Long Answer Type Question)

Answer *any three* of the following :   [15 x 3 = 45]

7. Explain the working principles of sensors. Describe different selection criteria for sensors. Give example.   [5+7+3]

8. What are the physical properties, those a thermal sensor based on? Describe it's applications [10 + 5] categorically.

9. Explain the Architecture of Smart Sensor. Identify the role of machine learning, artificial intelligence and [6+6+3] data analytics in Internet of Things. Explain with example of electrode fabrication.

10. Explain the interface electronic circuit for smart sensors. Why smart sensors are gaining importance? [6+4+5] Identify the future scope of research in smart sensor.

11. What Is IoT-Based Environmental Monitoring? What are the essential components for the IoT based [2 + 5 + 6 environmental monitoring? Describe the IoT architecture for environmental monitoring system. What is   + 2] rain gauge in IoT?

*** END OF PAPER ***