

# **SYCS/SEM IV/Regular/Internet of Things Technologies**

**Time: 2½ hrs.**

**Marks:75**

- Note:**
1. All questions are compulsory with internal choice.
  2. Draw neat diagrams wherever necessary.
  3. Figures to the right indicate full marks.
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**Q.1 Answer the following (any Four) (20)**

- (a) Explain enabling technologies in IOT.
- (b) What is a System on chip? Explain architecture of System on Chip.
- (c) Explain the following components of SoC:
  - FPGA
  - GPU
  - APU
- (d) Explain Raspberry Pi with the help of a diagram.
- (e) Explain the following terms:
  - Arduino
  - NodeMCU
- (f) What is ARM? Explain application of ARM.

**Q.2 Answer the following (any Four) (20)**

- (a) Explain the following sensors:
  - Light Sensor
  - Level Sensors
  - Ultrasonic sensors
- (b) Explain the difference between analog and digital sensors.
- (c) Define sensors and explain working of sensors with the help of examples.
- (d) Explain following I/O IOT devices:
  - I2C
  - GPIO
  - SPI
- (e) Define actuators and explain types of actuators.
- (f) Explain HTTP protocol in IOT.

**Q.3 Answer the following (any Four) (20)**

- (a) Explain types of WSN.
- (b) How is wireless sensor network different from IoT?
- (c) Explain IOT applications in transportation.
- (d) Write a note on node RED.
- (e) Define edge computing and explain architecture of edge computing.
- (f) Difference between Edge and Fog Computing.

**Q.4 Answer the following (any Five)**

**(15)**

- (a) What is the Internet Of Things? Explain the application of IoT.**
- (b) Explain the difference between IOT and M2M.**
- (c) Explain various security issues in IOT.**
- (d) What is the role of actuators in IOT?**
- (e) Explain the architecture of WSN.**
- (f) Explain how to send and receive messages to your IOT devices using MQTT.**

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