

- N.B.: (1) Question No. 1 is **Compulsory**.  
(2) Attempt any **three** questions out of the remaining **five**.  
(3) Each question carries 20 marks and sub-question carry equal marks.  
(4) Assume suitable data if required.

1. (a) How to integrate mobile with the server? (5)  
(b) List and explain characteristics of IoT (5)  
(c) What is fog computing? (5)  
(d) What is the advantage of low power mesh networking in communication protocols? (5)
2. (a) Draw and explain in detail functional block diagram of IoT. (10)  
(b) What are the real world design constraints while designing IoT system? (10)
3. (a) Discuss MQTT and REST protocols used for web connectivity. (10)  
(b) Discuss various physical devices and end point in IoT based system. (10)
4. (a) List various cloud based IoT platforms and explain any 3 in detail. (10)  
(b) Explain Zigbee and Bluetooth for device communications in IoT. (10)
5. (a) What is purpose of position and localization in IoT? Discuss in brief. (10)  
(b) Explain in brief various operating systems used in IoT (10)
6. (a) How IoT can be employed for home automation to control devices like light, TV, house climate, and home appliances? Explain with respect to the software, hardware, sensors, protocols, architecture and platforms used to design this system. (10)  
(b) Why privacy and network security is important in IoT based system and applications? Explain various privacy and network security measures in IoT based systems. (10)