

**T.E. (Computer Engineering) (Insem)**  
**INTERNET OF THINGS AND EMBEDDED SYSTEMS**  
**(2019 Pattern) (Semester - I) (310245(A)) (Elective - I)**

*Time : 1 Hour*

*[Max. Marks : 30*

*Instructions to the candidates:*

- 1) Answer Q.1 or Q.2, Q.3 or Q.4.
- 2) Neat diagrams must be drawn wherever necessary.
- 3) Figures to the right indicate full marks.
- 4) Assume suitable data if necessary.

**Q1)** a) What is an embedded system? What are the characteristics of an embedded system? [5]  
b) Introduce any embedded processor in brief. Explain its architecture. [5]  
c) What is a real time system? Describe the types of real time tasks. [5]

OR

**Q2)** a) Draw and elaborate the general model of an embedded system, what are the different applications of an embedded system. [5]  
b) Illustrate the different components of Microcontroller. [5]  
c) Define SOC. Explain it with suitable examples of it. [5]

**Q3)** a) Explain the concept of 'Things' in IoT with suitable examples of IoT devices. [5]  
b) Illustrate the need of analog to digital signal conversion and vice versa. Explain it with suitable application. [5]  
c) What are the challenges in implementing IoT applications? [5]

OR

**Q4)** a) Enlist IoT deployment levels and explain IoT level 4 with suitable application. [5]  
b) Define IoT and illustrate the use of Raspberry Pi as an IoT Device with suitable application. [5]  
c) Illustrate the Logical design of IoT with suitable example. [5]

