

MINOR-2, DEC 2020 (Online mode)

BE ECE-5th semester, Section-1&2

Subject: Advanced Microcontroller and Applications (EC506) (Theory)

Max marks: 30

Time: 90min (writing exam) + 15 min (scan and upload)

Attempt all question

1. What is an embedded development board(arduino uno) ? Draw a labelled block diagram of the embedded development board .Discuss various features of this embedded development board. Name any five open source embedded development boards except Arduino. (10)

2. Design and write a program for wearable embedded system application using arduino like Wristband to maintain social distance in crowded places. The application should adhere to the following specifications:
 - a) Device should maintain a distance of 1 m under normal condition and no alert(sound) is issued. But as the distance goes less than 1 m , alert (sound) should go higher and higher with decreasing distance.
 - b) Device should display the message “Social distance maintained” in normal circumstances on LCD. and display “ Social distance violated” otherwise.
 - c) Delay between sound and display alerts should be 10 ms .(10)

3. Explain serial communication with SPI protocol. Discuss its four modes with waveforms. Perform operations of data Send and request to/from slave through this protocol by using Mode 2. Discuss all important functions used in SPI.h for serial communication. (10)