Total No. of Questions : 8]

SEAT No. : ____

PB3842

[Total No. of Pages :2

[6262]-104

T.E. (E & TC)

EMBEDDED PROCESSOR

(2019 Pattern) (Semester- II) (Elective-II) (304195D)

Time : 2½ Hours] ***[Max. Marks : 70***

Instructions to the candidates:

1) ***Answer Q.1 or Q.2, Q.3 or Q.4, Q.5 or Q.6, Q.7 or Q.8.***
2) ***Neat diagrams must be drawn wherever necessary.***
3) ***Figures to the right side indicate full marks.***
4) ***Assume suitable data if necessary.***
5) ***Use of Calculator is allowed.***

Q1) a) Draw and explain interfacing diagram of GSM using UART with LPC 2148. What are AT commands? **[6]**

b) Explain UART module of LPC2148 in short. **[6]**

c) List the features of on chip ADC of LPC2148. Explain the function of bits in ADC Control Register. **[6]**

OR

Q2) a) Draw an interfacing diagram of DHT11 with LPC2148 and write an algorithm to display the temperature on LCD. **[6]**

b) Write the SFR associated with DAC & with algorithm explain how DAC can be used to generate ramp waveforms. **[6]**

c) Draw an interfacing diagram of servomotor with LPC2148 and write down the code to rotate the motor in clockwise direction. **[6]**

Q3) a) Write the features of STM32F4xx. **[9]**

b) Explain CMSIS Standard use for Firmware development. **[8]**

OR

Q4) a) Draw and explain the memory map of STM32F4xx. **[9]**

b) Differentiate between CORTEX A, R, M processors **[8]**

P.T.O.

Q5) a) Enlist various registers required to configure Serial Communication of STM32F4xx Microcontroller. Explain any one with suitable example. **[6]**

b) Draw an interfacing diagram to interface LDR sensor with STM32F4xx microcontroller and write algorithm/ flowchart to display the light parameter on LCD. **[6]**

c) Enlist various registers required to configure Timers of STM32F4xx Microcontroller. Explain any one with suitable example. **[6]**

OR

Q6) a) Draw an interfacing diagram and write a C program to blink LED's connected to Pin numbers (Port D) PD12,13,14 and 15 using STM32F4xx Controller. **[6]**

b) Draw an interfacing diagram and write a C program to interface "7-Segment" with STM32F4xx controller and display count digit "1" or "7" on it. **[6]**

c) Draw an interfacing diagram to interface MQ3 sensor with STM32F4xx and write algorithm/ flowchart to display the Gas percentage parameter. **[6]**

Q7) a) Draw an interfacing diagram and write a C program to interface accelerometer MPU 6050 using STM32F4xx microcontroller. **[9]**

b) Draw an interfacing diagram and write a C program to interface Ultrasonic Sensor HC-SR04 using STM32F4xx microcontroller. **[8]**

OR

Q8) a) Write the features of CAN bus? Explain CAN bus frame? **[9]**

b) Draw an interfacing diagram and write algorithm to Control DC Motor using PWM using STM32F4xx microcontroller. **[8]**