

Total No. of Questions : 8]

SEAT No. :

P322

[Total No. of Pages : 2

[6003] 403

T.E. (E & TC)

EMBEDDED PROCESSOR

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

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 indicates full marks.
- 4) Use of Calculator is allowed.
- 5) Assume suitable data, if necessary.

- Q1)** a) Explain UART module of LPC2148 in short. [6]
- b) Write down the code to transmit the data "Hello" continuously using serial port. [6]
- c) Draw an Interfacing diagram of GSM module with LPC2148 and write an initialization program to send a message. [6]

OR

- Q2)** a) Draw an interfacing diagram of DHT11 with LPC2148 and write an algorithm to display the temperature on LCD. [6]
- b) Enlist the features of on-chip ADC in LPC2148. Explain AD0GDR register. [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) Explain CMSIS Standard use for Firmware development. [9]
- b) Write the features of STM32F4xx. [8]

OR

- Q4)** a) Explain with diagram ARM STM Bus Architecture. [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) Write a C program to generate a Ramp Waveform, Square Waveform using on chip DAC of STM32F4xx controller. [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) PD 12, 13, 14 and 15 using STM 32F4xx Controller. [6]
- b) Draw an interfacing diagram and draw flowchart to interface "7 Segment" with STM32F4xx controller and display count digit "1" or "7" on it. [6]
- c) Explain GPIO_ODR and GPIO _ BSRR of STM32F4xx with simple example. [6]

- Q7)** a) Draw an interfacing diagram and write a algorithm to interface accelerometer MPU 6050 using STM32F4xx microcontroller. [9]
- b) Draw an interfacing diagram and draw a flowchart 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]

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