

| School of Electrical and Computer Engineering **Semester - V**  **T.Y.B. Tech (2023 - 2024)**  **Microcontroller and Applications**  **ECE2003B**  **Date:** 21/11/2023 |
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| **Last Date of submission:** 30/11/2023 **Max Marks :20M**  Course Outcome:   1. Make use of Integrated Development Environment (IDE) for programming and debugging. (CL-III) 2. Apply knowledge of microcontroller interfacing with various peripherals for developing real world applications. (CL-III)     **SET 1.1**   | Q.1 | Draw interfacing diagram to connect 8 LED’s to Port 4 of C8051F340 in common anode mode and write c code to flash alternate LED’s continuously. | (5M) | | --- | --- | --- | | Q.2 | Draw interfacing diagram to interface 16x2 LCD in 4-bit mode with C8051F340. Display your name on 2nd line of LCD. | (5M) | | Q.3 | Draw interfacing diagram and write C code to interface DAC-0808 with C8051F340 to generate Sine wave with step angle of 10 degree. | (5M) | | Q.4 | Draw interfacing diagram and write C code to generate PWM waveform of 80KHz with a duty cycle of 65% on Port Pin P3.3. | (5M) |   **Note: Roll no. 1 to 10 submit SET 1.1** |

**SET 1.2**

| Q.1 | Draw interfacing diagram to interface 7 segment multiplexed display with C8051F340 to design BCD counter to count from 0 to 9. (Consider common cathode configuration) | (5M) |
| --- | --- | --- |
| Q.2 | Draw interfacing diagram to interface 16x2 LCD in 4-bit mode with C8051F340. Display your name on 2nd line of LCD. | (5M) |
| Q.3 | List SFRs to program on chip ADC of C8051F340. Configure these registers for Analog input connected to Port Pin P2.2 in single ended mode. | (5M) |
| Q.4 | Draw interfacing diagram and write an Embedded C program to generate a PWM Waveform of frequency 90KHz with a duty cycle of 25%. | (5M) |

**Note: Roll no. 11 to 20 submit SET 1.2**

**SET 1.3**

| Q.1 | Draw interfacing diagram to connect 8 LED’s to C8051F340 in common anode mode and write c code to flash LED’s continuously for 5mSec (Use Timer 0 Mode 1for delay generation) | (5M) |
| --- | --- | --- |
| Q.2 | Draw interfacing diagram and write an Embedded C program to transmit the string “Welcome” serially at baud rate of 1200. | (5M) |
| Q.3 | Draw interfacing diagram and write embedded C program to interface on-chip ADC with Analog input connected to Port Pin P3.4 in single ended mode. Display result on LEDs connected in common anode configuration. | (5M) |
| Q.4 | Draw interfacing diagram and write C code to interface DAC-0808 with C8051F340 to generate  a) Trapezoidal Wave  b) Saw tooth Wave | (5M) |

**Note: Roll no. 21 to 30 submit SET 1.3**

**SET 1.4**

| Q.1 | Draw interfacing diagram to connect 8 LED’s to C8051F340 in common cathode configuration and write c code to flash LED’s continuously. | (5M) |
| --- | --- | --- |
| Q.2 | Draw interfacing diagram and write an Embedded C program to transmit your name serially at baud rate of 4800. | (5M) |
| Q.3 | Draw interfacing diagram and write embedded C program to interface on-chip ADC with Analog input connected to Port Pin P3.0 in single ended mode. Display result on LEDs connected in common anode configuration. | (5M) |
| Q.4 | Draw interfacing diagram and write C code to interface DAC-0808 with C8051F340 to generate   1. Triangular Wave 2. Saw tooth Wave | (5M) |

**Note: Roll no. 31 to 40 submit SET 1.4**

**SET 1.5**

| Q.1 | Draw interfacing diagram to connect switch, relay and buzzer to Port Pins P1.5, P1.6 and P1.7 respectively of C8051F340 and write c code to turn on Relay and buzzer if Switch1 is pressed and turn off if Switch 2 is pressed. | (5M) |
| --- | --- | --- |
| Q.2 | Draw interfacing diagram and write an Embedded C program to receive data serially at baud rate of 4800 and send it to LEDs connected to Port 2. | (5M) |
| Q.3 | Draw interfacing diagram to interface 16x2 LCD in 4-bit mode with C8051F340. Describe the method for sending command and data to the LCD with example. | (5M) |
| Q.4 | Draw interfacing diagram and write C code to interface DAC-0808 with C8051F340 to generate a square wave of period 5mSec (Use Timer 0 Mode 1 for delay generation). | (5M) |

**Note: Roll no. 41 to 50 submit SET 1.5**

**SET 1.6**

| Q.1 | Draw interfacing diagram and write embedded C program to interface stepper motor with C8051F340. Rotate the motor in clockwise direction using half stepping. | (5M) |
| --- | --- | --- |
| Q.2 | Draw interfacing diagram and write embedded C program to interface on-chip ADC with analog input connected to port pin P3.7 in single ended mode. Display result on LEDs connected in common anode configuration. | (5M) |
| Q.3 | Draw interfacing diagram and write C code to generate PWM waveform of 60KHz with a duty cycle of 60% on Port Pin P4.2. | (5M) |
| Q.4 | Draw interfacing diagram and write C code to interface 7 segment multiplexed display with C8051F340 to display a character ‘A’. (Consider common cathode configuration) | (5M) |

**Note: Roll no. 51 to 63 and remaining if any submit SET 1.6**

Dr. Harshali Zodpe

Subject Teacher

| Sr. No | PRN No. | Roll No | Name |
| --- | --- | --- | --- |
| 1 | 1032201333 | 1 | Shivraj Rajabhau Wankhade |
| 2 | 1032211780 | 2 | Abhay Kapil Biradar |
| 3 | 1032212420 | 3 | Abhishek Agrawal |
| 4 | 1032211902 | 4 | Abhishek Hanmant Kadam |
| 5 | 1032212057 | 5 | Aditi Ashok Gajmal |
| 6 | 1032210763 | 6 | Aditya Sharma |
| 7 | 1032212069 | 7 | Aditya Vishwaraj |
| 8 | 1032210980 | 8 | Adneya Yogesh Korpe |
| 9 | 1032211890 | 9 | Akshat Jain |
| 10 | 1032212304 | 10 | Allen Shyju John |
| 11 | 1032212015 | 11 | Aman Niranajn |
| 12 | 1032211219 | 12 | Ameya Ajit Ganpatye |
| 13 | 1032210838 | 13 | Anadi Desai |
| 14 | 1032210264 | 14 | Anjum Ibrahim Mulani |
| 15 | 1032212039 | 15 | Anuja Sarjerao Salunkhe |
| 16 | 1032211151 | 16 | Anurag Gautam |
| 17 | 1032212037 | 17 | Anurag Jasrotia |
| 18 | 1032211737 | 18 | Apoorva Anand Athalye |
| 19 | 1032210914 | 19 | Arnav Jagannath Mukherjee |
| 20 | 1032210997 | 20 | Aryan Vinayak Nigudkar |
| 21 | 1032211425 | 21 | Ashish Ranjan |
| 22 | 1032211522 | 22 | Atharv Vijay Yadav |
| 23 | 1032210975 | 23 | Bhakti Ashish Agrawal |
| 24 | 1032210189 | 24 | Chaitanya Sunil Khedkar |
| 25 | 1032212104 | 25 | Daman Chakraborty |
| 26 | 1032211200 | 26 | Gaurav Bind |
| 27 | 1032211982 | 27 | Harsh Piyush Shah |
| 28 | 1032211525 | 28 | Harsh Vardhan Singh |
| 29 | 1032210402 | 29 | Hemakshi Mago |
| 30 | 1032212418 | 30 | Himanshu Anand Dhoot |
| 31 | 1032210982 | 31 | Janhavi Kherdekar |
| 32 | 1032211527 | 32 | Jeremy John Mathew |
| 33 | 1032212026 | 33 | Kamya Tarak Lad |
| 34 | 1032211088 | 34 | Kaustubh Nimbalkar |
| 35 | 1032212033 | 35 | Krishna Nanasaheb Patil |
| 36 | 1032211491 | 36 | Mitali Ganesh Shinde |
| 37 | 1032212619 | 37 | Mukund Narsaria |
| 38 | 1032212086 | 38 | Om Rajesh Sakharkar |
| 39 | 1032211968 | 39 | Paresh Sanjay Choudhary |
| 40 | 1032211909 | 40 | Sahil Jain |
| 41 | 1032221676 | 41 | Sakshi Avinash Shinde |
| 42 | 1032211582 | 42 | Sakshi Mangesh Vetoskar |
| 43 | 1032211930 | 43 | Samrudh Dhondu Rane |
| 44 | 1032222100 | 44 | Sarvesh Dinesh Gurav |
| 45 | 1032211276 | 45 | Sarvesh Sandeep Pawar |
| 46 | 1032212006 | 46 | Satvik Bharat Tajne |
| 47 | 1032211397 | 47 | Saumya Virendra Patil |
| 48 | 1032211661 | 48 | Shantanu Lokesh Pandit |
| 49 | 1032211135 | 49 | Sharayu Sugriv Mohgaonkar |
| 50 | 1032211784 | 50 | Shardul Nitin Anaspure |
| 51 | 1032210873 | 51 | Shivam Kashyap |
| 52 | 1032211745 | 52 | Shreerang Prashant Mhatre |
| 53 | 1032211919 | 53 | Siddharth Anand Bhagwat |
| 54 | 1032212411 | 54 | Simon Gupta |
| 55 | 1032211760 | 55 | Sugandh Kedia |
| 56 | 1032212301 | 56 | Tanvi Kariappa |
| 57 | 1032212061 | 57 | Tarun Shetty |
| 58 | 1032211259 | 58 | Udayraje Deshmukh |
| 59 | 1032211864 | 59 | Utkarsh Shukla |
| 60 | 1032221693 | 60 | Vivek Wagh |
| 61 | 1032211121 | 61 | Vrinda Morey |
| 62 | 1032211800 | 62 | Vyankatesh Barkade |
| 63 | 1032211869 | 63 | Wadood Arif Aga |
| 64 |  |  |  |