Reg. No.: 21BPS1364

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(Deemed to be University under section 3 of UGC Act, 1956)

## Continuous Assessment Test I – January 2023

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|---|---|---|---|---|---|
| Programme | : | B.Tech. (CSE) & B.Tech. CSE with Specialization) | Semester | : | WS 2022-23 |
| Course | : | Microprocessors and Microcontrollers | Code | : | BECE204L |
| | | | Class Nbr | : | CH2022235002461 |
| Faculty | : | Dr. Ravi Tiwari | Slot | : | F2 + TF2 |
| Time | : | 90 Minutes | Max. Marks | : | 50 |

**Answer ALL the questions**

| Q.No. | Sub. Sec. | Questions | Marks |
|---|---|---|---|
| 1. | | Differentiate the 8-bit microprocessor and 16-bit microprocessor with respect to architecture, memory segmentation, and types of flags. | [5] |
| 2. | | Draw and illustrate the significance of each flag bit in 8086 flag register. | [5] |
| 3. | | Discuss any five addressing modes of 8086. Also, give two examples for each. | [10] |
| 4. | | Let the registers in 8086 be SS = ABCDH, BP = 2345H, SP = 7456H, AX = 0509H and BX = BC02H, CS = 6500H, DS = 9876H, SI = 1000H, IP = 1200H, ES = 1234H.<br>Write the contents of BX, AX, CX, and SP in the given table after the execution of each instruction. | [10] |
| 5. | | Write an 8086 assembly language program to compute the number of working days and average working hours in January 2023. The first day of the month is Sunday. Assume the number of working hours is 8 per working day and the number of holidays is 3. The working days could be calculated as below:<br>Number of working days in a month = Number of days in a month – (Number of Saturdays + Number of Sundays + Number of Holidays). | [10] |
| 6. | | Assume that you are going to interface 8255 programmable peripheral interface with 8086 microprocessor present in a car. The 8255 is configured as: PORT A as Input, PORT B and PORT C as Output. The seat belt sensor in the car is connected to the port pin 3 of PORT A (PA3) and the alarm is connected to the port pin 2 of PORT B (PB2). Draw the interfacing diagram with all necessary pin connections and write an 8086 assembly language program to check the driver is wearing the seat belt or not, if not, give an alarm signal. | [10] |

| Instruction | BX | AX | CX | SP |
|---|---|---|---|---|
| PUSH BX | | | | |
| POP CX | | | | |
| SAR AL,CL | | | | |
| XCHG AX, BX | | | | |
| AND BL,F0H | | | | |

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