Total No. of Questions—**8**] [Total No. of Printed Pages—**4**

| **Seat No.** | |
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# [4757]-1040

## S.E. (Electrical) (Second Semester) EXAMINATION, 2015

## FUNDAMENTALS OF MICROPROCESSOR AND MICROCONTROLLER

## (2012 Pattern)

**Time : Two Hours** **Maximum Marks : 50**

***N.B.*** **:—** (*i*) Attempt Q. No. **1** *or* Q. No. **2**, Q. No. **3** *or* Q. No. **4**, Q. No. **5** *or* Q. No. **6**, Q. No. **7** *or* Q. No. **8**.

(*ii*) Neat diagrams must be drawn wherever necessary.

(*iii*) Figures to the right indicate full marks.

(*iv*) Assume suitable data, if necessary.

**1.** (*a*) Explain the function of pins of 8085 : [4]

(*i*) HOLD

(*ii*) INTR

(*b*) Explain the stack and stack pointer in 8085 microprocessor. [4]

(*c*) Draw the timing diagram of I/O Read Machine Cycle. [4]

P.T.O.

*Or*

**2.** (*a*) State the condition of each flag after execution of instruction in 8085 microprocessor : [4]

(*i*) XRI 05H

(*ii*) MVJ A, 05H

(*b*) Write down assembly language program for 8085 microprocessor to add two 8-bit numbers stored in memory location 4050 H and 4051 H. Store the result in 5000 H and 5001 H memory location. [4]

(*c*) Write down any *four* features of Intel 8085. [4]

**3.** (*a*) List the operating modes of 8255. Draw control word format of I/O mode and BSR mode. [6]

(*b*) Draw PSW and explain various Flags in 8051 microcontroller. [7]

*Or*

**4.** (*a*) Write an assembly language program to generate triangular waveform using DAC interfaced with 8051 microcontroller. [7]

(*b*) Draw the format of TMOD and TCON registers. [6]

**5.** (*a*) List down the various addressing modes used in instruction set of 8051. Give *one* example of each. [6]

(*b*) Explain steps to transfer data serially in 8051 and importance of TI flag. [6]

*Or*

**6.** (*a*) Explain the following instructions : [6]

(*i*) SWAP A

(*ii*) DJNZ R0, Label

(*iii*) PUSH 00H

(*b*) What will be the contents of the accumulator and register R0 after execution of the following code : [6]

```
MOV A, # 88 H
ADD A, # 06H
MOV R0, A
DA A
HERE : SJMP HERE
```

**7.** (*a*) Explain energy measurement using 8085 with suitable block diagram. [6]

(*b*) Draw and explain stepper motor control using 8051. [7]

*Or*

**8.** (*a*) Explain power factor measurement using 8085 with block diagram. [6]

(*b*) Explain with interfacing diagram, temperature measurement using 8051. [7]