V Semester B.Sc. Examination, November/December 2018
(Semester Scheme) (CBCS) (F+R)
(2016 – 17 and Onwards)
ELECTRONICS – VI
EL-502 : Microprocessor and Electronic Instrumentation

Time : 3 Hours

Max. Marks : 70

Instructions : Answer **all** the questions of Part – **A, any five** questions from
Part – **B** and **any four** questions from Part – **C**.

Note : Answer **all** the questions of Part – A in **any one** page, the **same**
question answered multiple times will **not** be considered for
evaluate.

PART – A   (15×1=15)

1. i) In 8085 microprocessor, address bus is
    a) 4 bits   b) 8 bits   c) 16 bits   d) 32 bits

    ii) The instruction which rotates the contents of accumulator one bit to the right
        including carry
        a) RRC   b) RAR   c) RLC   D) RAL

    iii) Which of the following is not a control signal ?
        a) READ   b) WRITE   c) RESET   d) ALE

    iv) The term Program Status word refers to
        a) Accumulator and flag register   b) H and L register
        c) Accumulator and instruction register   d) B and C register

    v) The relation among instruction cycle, fetch cycle and execution cycle is
        a) Execution cycle = Instruction cycle + 2 Fetch cycle
        b) Instruction cycle = Fetch cycle – Execution cycle
        c) Instruction cycle = Fetch cycle + 2 Execution cycle
        d) Instruction cycle = Fetch cycle + Execution cycle

    vi) The stack used in 8085 microprocessor is
        a) LIFO   b) LILO   c) FIFO   d) FILO

P.T.O.

vii) Execution of the instruction INX B affects
    a) Only carry flag   b) Both carry and zero flag
    c) No flags   d) All flags

viii) Which interrupt has the highest priority ?
    a) INTR   b) TRAP   c) RST 6.5   d) RST 7.5

ix) POP D is a
    a) 1 byte instruction   b) 2 byte instruction
    c) 3 byte instruction   d) 4 byte instruction

x) A piezoelectric transducer converts
    a) electrical energy to sound energy
    b) sound energy to electrical energy
    c) temperature to electrical energy
    d) stress to electrical energy

xi) LVDT works on the principle of
    a) Self inductance   b) Mutual inductance
    c) Resistance   d) Capacitance

xii) Precision of an instrument is defined as the
    a) Closeness of output to true value
    b) Change in output for every change in input
    c) Degree of freedom of random error
    d) Repeatability of the measured values

xiii) The principal ion that is not involved with the phenomena of producing cell potentials is
    a) sodium   b) potassium   c) chlorine   d) hydrogen

xiv) Electrodes to measure EEG are placed on
    a) chest   b) scalp   c) cheek   d) ears

xv) Recording of electrical activities associated with the heart is known as
    a) EEG   b) EOG   c) EMG   d) ECG

PART – B   (5×7=35)

2. Draw the architecture of 8085 microprocessor. Explain ALU.

3. Explain any four addressing modes in 8085 with an example each.

4. i) What is an instruction cycle ?

   ii) With timing diagram, explain the opcode fetch machine cycle in 8085 microprocessor.   (2+5)

5. i) Mention the 16-bit registers of 8085 microprocessor.

   ii) Draw the flag register format and explain their functions.   (2+5)

6. With necessary diagram, explain the interfacing of séen segments LED with 8085 microprocessor.

7. What is a strain gauge ? Explain the construction and working of foil strain gauge.

8. a) What is the importance of signal conditioning in the field of instrumentation ?

   b) What is a carrier amplifier ? With a block diagram, explain its operation. (2+5)

9. Write a note on the origin of bio-electric signals.

<div align="center">PART – C   (4×5=20)</div>

10. Explain the following instructions :

    i) LXI H 9000

    ii) LHLD 9000

    iii) XRA A.

11. Calculate the time delay for the following program with 5 MHz clock frequency.

	LXI B, 1234	10 T states
BACK :	DCX B	05 T states
	MOV A, C	05 T states
	ORA B	04 T states
	JNZ BACK	10/7 T states

12. Write an assembly language program to find the sum of two 16-bit numbers in 8085 microprocessor.

13. Write the control word of 8255 to program it in mode 0.

    Port A = Input port, Port B = output port, Port CU = Input port and Port CL = Output port.

14. In a certain current measurement system, the current to be measured in 25 mA, whereas the measurement yields a current of 22 mA. Calculate the (i) absolute error (ii) percentage error (iii) relative accuracy (iv) percentage accuracy.

15. Draw the block diagram of EEG and explain the function of each block.

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