SN – 396

V Semester B.Sc. Examination, November/December 2017
(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 evaluation.*

PART – A

Answer **all** subdivisions. **(15×1=15)**

1. i) Memory capacity of a microprocessor depends on
   a) Data bus width b) Address bus width
   c) Word size d) a) and b)

   ii) LHLD is _____ byte instruction.
   a) 1 b) 2
   c) 3 d) All the above

   iii) What is the content of accumulator when XRA A instruction is executed ?
   a) 00H b) 01H
   c) 10H d) FFH

   iv) Multiplication in 8085 μP is performed by
   a) Successive subtraction b) Successive addition
   c) Successive division d) None of the above

   v) The stack pointer is a
   a) 8 bit b) 16 bit
   c) 4 bit d) None of these

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

P.T.O.

vii) Interfacing IC 8279 is also known as
   a) Programmable peripheral interface
   b) Keyboard/Display Interface
   c) DMA controller
   d) Both b) and c)

viii) Accuracy of an instrument is defined as
   a) Closeness of output to the true value
   b) Change in output for every change in input
   c) Degree of freedom from random errors
   d) Both a) and b)

ix) Thermistors are used for the measurement of
   a) Sound
   b) Displacement
   c) Humidity
   d) Temperature

x) The example for photo electric transducer is
   a) Thermistor
   b) LDR
   c) Microphone
   d) LVDT

xi) Bioelectric potentials are generated at
   a) Neurons
   b) Blood
   c) Cellular level
   d) None of these

xii) The limb electrode can be replaced by _____ in ECG.
   a) Floating electrode
   b) Needle electrode
   c) Pasteless electrode
   d) None of the above

xiii) In ECG waveform the peak value of the wave is called as
   a) R wave
   b) U wave
   c) T wave
   d) P wave

xiv) The approximate depolarized cell potential is
   a) – 20 mV
   b) – 40 mV
   c) + 90 mV
   d) + 60 mV

xv) The type of electrode used in EMG is
   a) Skin electrode
   b) Needle electrode
   c) Contact electrode
   d) Both a) and c)

PART – B

Answer **any five** questions. **(5×7=35)**

2. Draw the architecture of 8085 μP and explain the function of accumulator and Program Counter Register.
3. Explain the various addressing modes of 8085 Microprocessor with examples.
4. What is Stack ? Explain PUSH and POP instructions with an example.
5. Explain the various interrupts available in 8085 microprocessors.
6. Explain the functional block diagram of programmable peripheral IC 8255.
7. a) Define the following terms with respect to measurement systems :
   i) Sensitivity
   ii) Resolution
   iii) Precision
   iv) Accuracy
   v) Expected value
   b) Write any two differences between active and passive transducers. **(5+2)**
8. Explain the construction of Loud speaker and Microphone.
9. Draw the block diagram of ECG and explain the function of each block.

PART – C

Answer **any four** questions. **(4×5=20)**

10. Explain the following instructions
    a) MOVA, M
    b) ADD B
    c) RAL
    d) JNZ 16 bit address
    e) NOP.
11. Write an assembly language program to add two BCD numbers.

12. Write an assembly language program to find the smallest number in an array of five 8 bit numbers.

13. Calculate the time delay for the following program with 3 MHz clock.

Label	Mnemonic	T-states
	MVI B, 1AH	07
loop	DCR B	04
	JNZ loop	10/7
	NOP	04
	NOP	04
	RET	10

14. The expected value of the current to be measured is 100 mA. However the measurement gives the value of 98 mA. Calculate the relative accuracy, percentage accuracy and error.

15. With a block diagram, explain the working of EEG.

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