No. of Printed Pages : **4**

GN-263

100503

V Semester B.Sc. Examination, December - 2019

(CBCS) (F+R) (2016-17 and Onwards)

ELECTRONICS - VI

EL502 : Microprocessor and Electronic Instrumentation

Time : 3 Hours

Max. Marks : 70

Instructions : *(i) Answer **all** questions from **Part - A**, **any five** questions from **Part - B** and **any four** questions from **Part - C**.*

*(ii) Answer **all** questions of **Part - A** in **one page**. The same question answered multiple times will not be considered for evaluation.*

PART - A

Answer **all** the subdivisions : **15x1=15**

1. (i) Which among the following is **not** a microprocessor ?

(a) 8080 (b) 8051

(c) 8085 (d) 8086

(ii) 8085 microprocessor has _____ bit address bus and _____ bit data bus.

(a) 4 and 8 (b) 8 and 8

(c) 16 and 8 (d) 8 and 16

(iii) A program written in mnemonics is called _____.

(a) assembly language program

(b) high level language

(c) machine level language program

(d) all the above

(iv) Instruction CP means _____.

(a) Call on Positive (b) Call on Parity

(c) Check Parity (d) Compare Positive

(v) After the execution of POP instruction, the value of stack pointer is _____.

(a) incremented by 1 (b) decremented by 1

(c) incremented by 2 (d) decremented by 2

P.T.O.

(vi) Which is an example of implicit addressing ?

(a) MOV A,A (b) CMA

(c) MOV A,M (d) LHLD Addr.

(vii) The I/O instruction to read data from location *40**H*** is _____.

(a) IN 40H (b) OUT 40H

(c) MOV A, 40H (d) MOV A, M

(viii) Control signal $\overline{WR}$ is **not** required to interface _____.

(a) RAM (b) ROM

(c) PPI (d) display

(ix) In 8255 mode 2, Port A uses _____.

(a) five lines of port C (b) three lines of port C

(c) six lines of port C (d) eight lines of port C

(x) The dynamic characteristics of an instrument should have high _____.

(a) fidelity (b) lag

(c) dynamic error (d) all the above

(xi) An active transducer is _____.

(a) self generating (b) dependent on external supply

(c) both (a) and (b) (d) none of the above

(xii) Thermistors are made of _____.

(a) two dissimilar metals (b) only metallic conductors

(c) semiconductor materials (d) two similar metals

(xiii) A single transistor dynamic switch which converts low level dc signal to an ac waveform is _____.

(a) chopper amplifier (b) carrier amplifier

(c) lock in amplifier (d) oscillator

(xiv) When a cell is depolarized its potential will be approximately _____.

(a) +90 mV (b) +20 mV

(c) −20 mV (d) −90 mV

(xv) Strain gauge transducers are used to measure _____.

(a) blood flow (b) oximetry

(c) blood pressure (d) phonocardiogram

PART - B

Answer **any five** questions : **5x7=35**

2. Explain register organization of 8085 microprocessor. **7**

3. Classify 8085 instruction set and explain the following instructions : **7**
(a) CPI 8-bit (b) SBB B (c) RRC

4. Draw and explain the timing diagram of MVI A, FF*H*. **7**

5. (a) Write a program to add "n" one byte numbers. **5+2**
(b) What is subroutine ? Why it is required ?

6. Explain the block diagram of matrix key board interfacing with 8085. **7**

7. (a) Draw the functional block diagram of 8255. **4+3**
(b) Write a note on loudspeaker.

8. Explain the construction and working of *LVDT*. **7**

9. Draw and explain the block diagram of *ECG*. **7**

PART - C

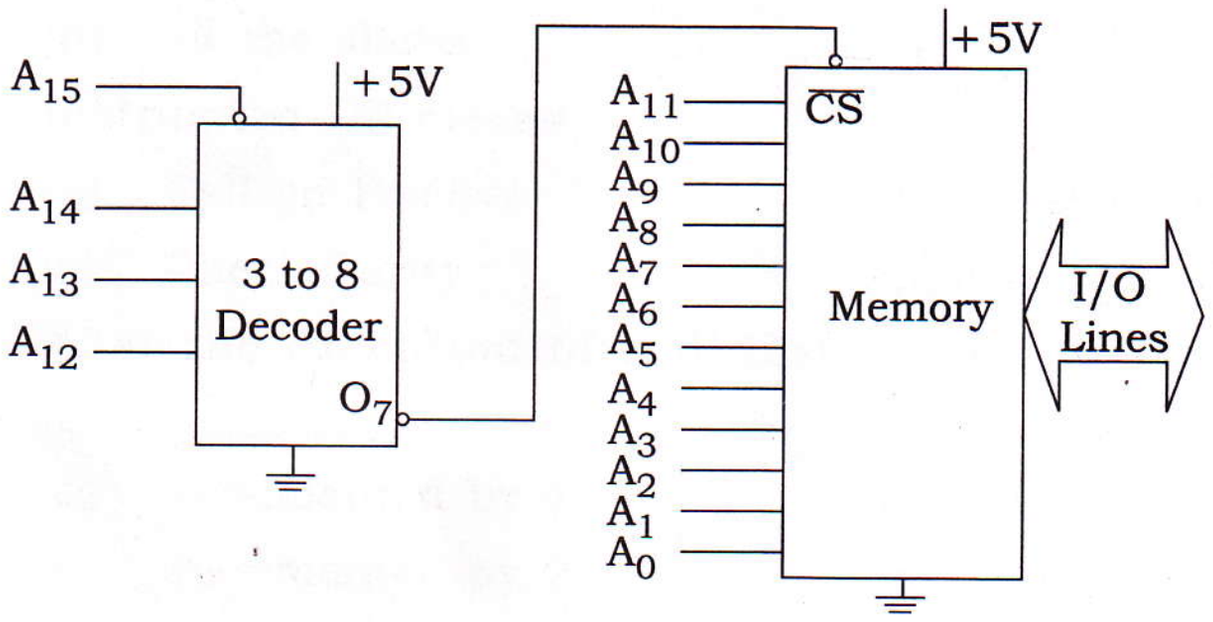
Answer **any four** questions. **4x5=20**

10. Draw the architecture of 8085. **5**

11. Calculate the total time delay generated for the following program with clock frequency 3 MHz. **5**

	MVI B, 38*H*	7 T states
Loop2 :	MVI C, FF*H*	7 T states
Loop1 :	DCR C	4 T states
	JNZ Loop1	10/7 T states
	DCR B	4 T states
	JNZ Loop2	10/7 T states

12. Identify the chip select address and memory range for the given interfacing. **5**



P.T.O.

13. The expected value of the voltage across a resistor is 5 V. However, the measurement gives a value of 4.75 V. **5**

Calculate (i) absolute error, (ii) percentage error, (iii) relative accuracy and (iv) percentage of accuracy.

14. Write a note on the origin of bioelectric signals. **5**

15. Draw the block diagram of *EEG* and explain the working of filter section. **5**

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