



NS – 351

V Semester B.Sc. Examination, November/December 2016
(Semester Scheme) (CBCS)
(2016-17 and Onwards) (Fresh)
ELECTRONICS – VI



EL 502 : Microprocessor and Electronic Instrumentation

Time : 3 Hours

Max. Marks : 70

Instruction : 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) Name of a typical special purpose register is
a) PC b) IR c) SP d) All of these
- ii) Number of register pairs available in 8085 are
a) 2 b) 3 c) 4 d) None of these
- iii) Instruction Register in μP 8085 is
a) 4 bit b) 5 bit c) 8 bit d) 16 bit
- iv) Stack used in 8085 is
a) FIFO b) LILO c) FILO d) None
- v) The stack pointer is a
a) 8-bit register b) 16-bit register
c) 4-bit register d) None of these
- vi) The address where control returns after a subroutine is completed is known as
a) Return Address b) Main Address
c) Program Address d) Current Address

P.T.O.



- vii) RIM is used to check whether
- a) The write operation is done or not
 - b) The interrupt is masked or not
 - c) The read operation is done or not
 - d) a) and b)
- viii) Which statement is wrong according to linear decoding ?
- a) Address map is not adjacent
 - b) Conflicts occur if two of the select lines become active at the same time
 - c) If all unused address lines are not used as chip selectors then these unused lines become don't cares
 - d) Both b) and c)
- ix) Precision 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)
- x) Potentiometer transducers are used for the measurement of
- a) Pressure
 - b) Displacement
 - c) Humidity
 - d) Both a) and b)
- xi) Strain gauge is a
- a) Active device and converts a mechanical displacement into change of resistance
 - b) Passive device and converts an electrical displacement into change of resistance
 - c) Passive device and converts a mechanical displacement into change of resistance
 - d) Active device and converts an electrical displacement into change of resistance
- xii) Approximate depolarized cell potential is
- a) -90 mV
 - b) -20 mV
 - c) 20 mV
 - d) 90 mV





- xiii) The type of electrode used in EMG is
- a) Skin electrode
 - b) Needle electrode
 - c) Contact electrode
 - d) Both a) and c)
- xiv) The principal ions involved with phenomena of producing cell potentials
- a) Sodium
 - b) Potassium
 - c) Chloride
 - d) All of these
- xv) Resistance of electrolytic paste in chloride silver discs varies from
- a) $3\text{ K}\Omega$ to $20\text{ K}\Omega$
 - b) $2\text{ K}\Omega$ to $20\text{ K}\Omega$
 - c) 3Ω to 20Ω
 - d) 2Ω to 20Ω

PART - B

Answer **any five** questions :

(5x7=35)

2. Draw the functional block diagram of 8085 A microprocessor.
 3. a) Mention two functions of the accumulator.
b) Explain the purpose of following pins of 8085 Microprocessor :
 - i) SID
 - ii) TRAP
 - iii) RESET
 - iv) READY
 - v) HOLD.
- (2+5)
4. Draw and explain the timing diagram for op-code fetch cycle of 8085.
 5. Write an assembly language program to find the GCD of two 8-bit numbers.
 6. With block diagram explain the interfacing of 4×4 Matrix Key board to μP 8085.
 7. a) Explain the construction and working of a thermocouple. Mention an application.
b) Explain the principle of ultrasonic temperature transducer.
- (5+2)
8. Explain construction and working of foil strain gauge.
 9. Discuss the origin of bioelectric signals.





PART – C

Answer **any four** questions :

(4×5=20)

10. Explain following instructions with an example.

- i) LHLD addr
- ii) RIM
- iii) DAD r_p

11. Determine the time delay for the following program with system clock 3 MHz

LXI B, ABFEH	10	T- States
LOOP : DCX B	6	T- States
MOV A, C	4	T- States
ORA B	4	T- States
JNZ LOOP	10/7	T- States

12. Draw the circuit diagram to interface 4K byte EPROM to 8085 Microprocessor with memory mapping 0000H to 0FFFH.

13. Write the control word to configure the port of PPI 8255 as

- a) Port A and Port C_{upper} as input Ports.
- b) Port B and Port C_{lower} as output Ports
for mode 0 operation.

14. a) The expected value of the voltage to be measured is 150 V. However, the measurement gives a value of 149 V. Calculate relative accuracy and percentage accuracy.

- b) Discuss electrode used in ECG.

(2+3)

15. Draw a labeled block diagram of EEG.