

**S.No. 7379**

**PN 15 PY 3**

(For candidates admitted from 2015–2016 onwards)

**M.Sc. DEGREE EXAMINATION, NOVEMBER 2023.**

**Physics**

**ANALOG ELECTRONICS AND MICROPROCESSOR**

**Time : Three hours**

**Maximum : 100 marks**

**SECTION A — (10 × 2 = 20)**

**Answer ALL questions.**

1. Give a neat sketch of equivalent circuit of double based diode.
2. What are the main types of LEDs based on current outputs?
3. Define the physical limitations of operational amplifier.
4. Give the circuit diagram for comparator reference voltage.
5. Draw the block diagram of triangular wave generator.
6. Define sample hold circuit.
7. Write any two logical instructions of 8085 with example.

8. Define BCD and its types.
9. Sketch a pin diagram of 8255.
10. What is microprocessor based traffic control?

SECTION B — ( $5 \times 7 = 35$ )

Answer ALL questions, Choosing either (a) or (b)

11. (a) Describe a working mechanism of UJT as relaxation oscillator.

Or

- (b) Write a short note on industrial uses of Laser.

12. (a) Analyze the effect of high input impedance and low output impedance of buffer amplifier.

Or

- (b) Discuss in detail about antilog amplifier.

13. (a) Write a short note on Twin-T amplification.

Or

- (b) Determine the circuit operation and application of Schmit trigger.

14. (a) Write an assembly language program in 8085 to search a given number in an array on n numbers. If number is found, then store F0 in memory location 3051 otherwise store OF in 3051.

Or

- (b) Describe time delay loop using two logs.

15. (a) Write a short note on interfacing devices.

Or

- (b) Explain the 6 modes of operation in 8253 programmable interval timer.

SECTION C — ( $3 \times 15 = 45$ )

Answer any THREE questions.

16. Explain briefly the tunnel diode oscillator.
17. Demonstrate the floating load and ground load of V to I converter.
18. Discuss the types of DACS with a neat circuit diagram.
19. Explain briefly the operation and circuit simulation of square wave generator.
20. Brief out the data acquisition control systems.