Roll No. | | | | | | | | | | | | |

Total No. of Pages : 02

Total No. of Questions : 11

PIT M.Sc. (Physics) (Sem.-3)

ELECTRONICS

Subject Code : PHS-534

Paper ID : [51123]

Time : 3 Hrs. Max. Marks : 70

INSTRUCTIONS TO CANDIDATES :

1. **SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.**
2. **SECTION-B contains SEVEN questions carrying FIVE marks each and students have to attempt any SIX questions.**
3. **SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.**

SECTION-A

1. Answer briefly :

a) What do you mean by voltage follower? Discuss.

b) What do you mean by active filters? Explain.

c) Discuss the significance of gate triggering.

d) What are the limitations of analog instruments? Explain.

e) Compare SCR and TRIAC.

f) Discuss the significance of digital integrated circuits.

g) What do you mean by current tracers? Explain.

h) What is the need of sample and hold circuit? Explain.

i) Discuss the need of encoder.

j) Discuss the significance of de-multiplexer.

SECTION-B

2. Explain the principle of operation and working of a digital frequency meter.

3. Draw and explain the VI characteristics of a SCR.

4. What is UJT? Discuss the UJT relaxation oscillator circuit in detail.

5. Discuss the need of a filter circuit. Explain the band pass and band reject filters.

6. What measures are taken to interface TTL and CMOS circuits with each other? Explain.

7. Draw the circuit diagram and explain in detail the working of half adder and full adder.

8. Explain the working of 4 bit Ladder type digital to analog converter by considering an example.

SECTION-C

9. Explain the working of successive approximation analog to digital converter. Also mention its advantages and disadvantages.

10. Discuss the series and parallel operation of Thyristors in detail. Also discuss the problems associated with these operations and how these can be overcome.

11. Explain the following :

    a) Schmitt trigger.

    b) Digital voltmeter system.