

Roll.No.

25PPHCT1004

SHRIMATHI DEVKUNVAR NANALAL BHATT VAISHNAV COLLEGE FOR WOMEN  
(AUTONOMOUS)

(Affiliated to the University of Madras and Re-accredited with 'A+' Grade by NAAC)  
Chromepet, Chennai - 600 044.

M.Sc.Physics - END SEMESTER EXAMINATIONS - NOVEMBER 2025  
SEMESTER - I

**25PPHCT1004 - Advanced Electronic Circuits**

Total Duration : 2 Hrs. 30 Mins.

Total Marks : 60

### Section B

Answer any **SIX** questions ( $6 \times 5 = 30$  Marks)

1. Explain the working principle of dual slope ADC with a neat diagram.
2. Describe the working of a N-channel FET and its Volt-ampere characteristics
3. Distinguish between inverting and non - inverting amplifiers with circuit diagrams.
4. With the neat diagram explain the construction and characteristics of UJT.
5. Demonstrate the operation of a decade counter with a neat diagram.
6. Apply the principle of a phase shift oscillator to generate sinusoidal waves.
7. Illustrate the concept and working of a logarithmic amplifier.
8. Compare the high-pass and low-pass filter.

### Section C

I - Answer any **TWO** questions ( $2 \times 10 = 20$  Marks)

9. Describe the construction, working principle, input and output waveforms of wein bridge oscillator with neat diagram.
10. With circuits show that an op-amp can act as integrator, differentiator, adder and subtractor.
11. Elaborate the working of Schmitt trigger using operational amplifier with relevant circuit, equation and waveforms.
12. Design an R-2R ladder and explain its working.

II - Compulsory question ( $1 \times 10 = 10$  Marks)

13. Describe the construction and explain the operation of depletion mode MOSFET. Also draw the static characteristics.

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