

Sem-IV Physics Core-10  
Digital systems and applications

Answer any three question:-

- Q1. Explain De Morgan's theorems.
- Q2. Discuss Boolean Laws.
- Q3. Difference between analog and digital circuits.
- Q4. Draw the structure of NAND and NOR Gates
- Q5. What is arithmetic circuits?

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Sem-IV Physics (G.E)  
[Waves and Optics]

Answer any three question:-

- Q1. Discuss Fourier's theorem.
- Q2. Write Sabine's formula.
- Q3. What is forced vibrations?
- Q4. Explain Newton's rings.
- Q5. Describe Polarization.

Semester-IV Physics Core-8.  
(Mathematical Physics)

Answer any three question:-

- Q1. What is Euler's formula?
- Q2. Discuss De-Moivre's theorem.
- Q3. Definition of Dirac delta function.
- Q4. Write notes on Taylor's theorem.
- Q5. Discuss Laplace transform (LT) of Elementary functions.

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Semester-IV Physics Core-9  
Elements of Modern Physics

Answer any three question:-

- Q1. What is blackbody radiation?
- Q2. Explain de-Broglie wavelength.
- Q3. Discuss law of radioactive decay
- Q4. Prove that  $t_{1/2} = \frac{0.693}{k}$
- Q5. Discuss photoelectric effect.

Answer any three question:-

- Q1. Explain Gauss's theorem of Electrostatics.
- Q2. Discuss Biot-Savart's Law.
- Q3. Explain Faraday's laws of electromagnetic induction.
- Q4. Write a short notes on Lenz's Law.
- Q5. Explain Maxwell's Equation: