



TAMIL NADU OPEN UNIVERSITY

Chennai - 15

School of Sciences

Department of Physics

HOME / SPOT ASSIGNMENT

Programme Code No : 181
Programme Name : B. S.c., Physics
Course Code & Name : BPHY-11, Mechanics, Properties of Matter and Sound
Batch : AY 2020 -21 – I Year
No.of Assignments : One Assignment for Each 2 Credits
Maximum CIA marks : 15 (Average of Total No. of Assignment)

ASSIGNMENT -I

Answer any one of the questions not exceeding 1000 words

1. Explain law of conservation of momentum
2. To derive an expression for loss of Kinetic energy due to direct impact of two smooth spheres.
3. Explain the term Centre of mass with example

ASSIGNMENT -II

Answer any one of the questions not exceeding 1000 words

1. Explain (i) Newton's law of gravitation (ii) Kepler's laws of planetary motion.
2. Derive an expression for orbital velocity and Explain the term Geostationary Satellite and polar satellite
3. To derive an expression for variation of "g" with latitude altitude and depth.

ASSIGNMENT -III

Answer any one of the questions not exceeding 1000 words

1. Define the term elasticity and Explain three types of Modulus of Elasticity
2. What is Torsion Pendulum, Derive an expression for couple per twist of a wire
3. Derive an expression for bending of moment and Explain the term Cantilever

ASSIGNMENT -IV

Answer any one of the questions not exceeding 1000 words

1. Derive an expression for coefficient of viscosity and explain the term streamline and turbulent flow
2. Explain the construction and working of piezoelectric oscillator
3. Explain Molecular theory of surface tension and derive the relationship between surface energy and surface tension



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Programme Code No : 181
Programme Name : B. S.c., Physics
Course Code & Name : BPHY-12, Optics and Spectroscopy
Batch : AY 2020 -21 - I Year
No.of Assignments : One Assignment for Each 2 Credits
Maximum CIA marks : 15 (Average of Total No. of Assignment)

ASSIGNMENT -I

Answer any one of the questions not exceeding 1000 words

1. Explain the construction and working of Huygen's eyepiece.
2. Explain Dispersion and Refraction through a prism
3. Explain the term aberration of lenses and How to minimise spherical aberration in lenses?

ASSIGNMENT -II

Answer any one of the questions not exceeding 1000 words

1. What is Airwedge method?. To derive an expression for thickness of thin wire using Airwedge.
2. To derive an expression for thickness of thin flim due to interference of light.
3. Explain Fresnel's Biprism and What is half period zone? Explain

ASSIGNMENT -III

Answer any one of the questions not exceeding 1000 words

1. Explain in detail about resolving power of optical instruments
2. What is meant by Plane Transmission grating? Give the necessary theory and derive an expression for wavelength of unknown sourcs.

3. Explain Brewster's law and Explain the construction and working of Nicol prism.

ASSIGNMENT -IV

Answer any one of the questions not exceeding 1000 words

1. Explain the construction and working of Laurentz half shade polarimeter
2. What is Raman effect? Derive an expression for Raman shift with necessary theory.
3. Derive an expression for Einstein's Coefficient for laser action



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Programme Code No : 181
Programme Name : B.Sc., Physics
Course Code & Name : BPHYA-01, Differential Equations
Batch : AY 2020-21 – I Year
No.of Assignment : One Assignment for Each 2 Credits
Maximum CIA Marks : 15 (Average of Total No. of Assignments)

Assignment – I

Answer any one of the question not exceeding 1000 words

1. Solve: $x^2 \frac{d^2y}{dx^2} + 3x \frac{dy}{dx} + y = \frac{1}{(1-x)^2}$

2. Solve by the method of variation of parameters.

$$\frac{d^2y}{dx^2} + 4y = \operatorname{cosec} 2x$$

3. (a) Solve : $(D^2 - 8D + 9)Y = 8 \cos 5x$.

(b) Solve : $(D^2 - 5D + 6) Y = x^2 - x + 2$

Assignment – II

Answer any one of the question not exceeding 1000 words

1. Solve: $x^2 \frac{d^2y}{dx^2} - x \frac{dy}{dx} + y = \frac{\log x \cdot \sin(\log x) + 1}{x}$

2. Solve by the method of variation of parameters.

$$x^2 \frac{d^2y}{dx^2} + x \frac{dy}{dx} - y = x^2 e^x$$

3. (a). Solve: $(D^2 - 4D + 3)Y = \sin 3x \cos 2x$.

(b). Solve : $(D^2 - 2D + 4) Y = e^x \cos x$.