



TAMIL NADU OPEN UNIVERSITY
Chennai - 15
Department of Physics
School of Sciences

HOME / SPOT ASSIGNMENT

Programme Code No	: 181
Programme Name	: B.Sc., Physics
Course Code & Name	: BPHYS-11, PROPERTIES OF MATTER AND SOUND
Batch	: AY 2021-2022 (1 st YEAR - I SEMESTER)
No. of Assignment	: One Assignment for Each 2 Credits
Maximum CIA marks	: 15 (Average of Total No. of Assignments)

ASSIGNMENT - 1

Max : 15 marks

Answer any one of the question not exceeding 1000 words

1. What is Cantilever? Derive the expression for bending of beam and explain the theory of Uniform and Non-Uniform bending of beam
2. Explain the Dynamic torsion method for determining the rigidity modulus of an object.
3. Deduce the expression for the excess pressure acting inside a (i) Liquid drop, (ii) soap bubble and (iii) curved liquid surface.

ASSIGNMENT - 2

Max : 15 marks

Answer any one of the question not exceeding 1000 words

1. What is Capillarity?. Deduce the Poiseuille's expression to determine the rate of flow of liquid in a capillary tube.
2. Explain the Rankine's method of determining the viscosity of gases in detail.
3. Explain the Piezoelectric method in detail for the production of ultrasonic waves and Explain the properties, few of the applications of ultrasonic waves



TAMIL NADU OPEN UNIVERSITY
Chennai - 15
Department of Physics
School of Sciences

HOME / SPOT ASSIGNMENT

Programme Code No	: 181
Programme Name	: B.Sc., Physics
Course Code & Name	: BPHYS-21, MECHANICS
Batch	: AY 2021-2022 (1 st YEAR - II SEMESTER)
No. of Assignment	: One Assignment for Each 2 Credits
Maximum CIA marks	: 15 (Average of Total No. of Assignments)

ASSIGNMENT - 1

Max : 15 marks

Answer any one of the question not exceeding 1000 words

1. Explain the conservative and non-conservative forces in detail.
2. Deduce the parallel and perpendicular axes theorem. Explain their significances and Derive an expression for MI of Hollow Sphere and Cylinder
3. Derive the variation of acceleration due to gravity (g) at different regions of earth.

ASSIGNMENT - 2

Max : 15 marks

Answer any one of the question not exceeding 1000 words

1. Explain torque. Derive the expression for the acceleration of a rolling body in an inclined plane.
2. Classify the laws of friction. Explain the angle and cone of friction in detail.
3. Deduce the Euler's equation for an unidirectional flow of liquid. Explain the Bernoulli's theorem and its application.



TAMIL NADU OPEN UNIVERSITY

Chennai-15.

B.Sc Maths – First Year
HOME ASSIGNMENT

Programme Code No	: 181
Programme Name	: B.Sc., Physics
Course Code & Name	: BMSSA-11 ALLIED MATHEMATICS - 1
Batch	: AY 2021-22
No. of Assignment	: 02
Maximum CIA Marks	: 15Marks (Average of total no. of Assignments)

ASSIGNMENT -1

Max: 15 Marks

Answer any ONE of the following three questions.

1. Find the eigen values of the matrix $A = \begin{bmatrix} 2 & 2 & 0 \\ 2 & 1 & 1 \\ -7 & 2 & -3 \end{bmatrix}$
2. Find the n^{th} differential coefficient of $\frac{x^2}{(x+1)^2(x+2)}$
3. Prove that $\int_2^3 \sqrt{(x-2)(3-x)} dx = \frac{\pi}{8}$

ASSIGNMENT -2

Max: 15 Marks

Answer any ONE of the following three questions.

1. Diagonalize the matrix by suitable transformation.

$$A = \begin{bmatrix} 1 & 1 & 3 \\ 1 & 5 & 1 \\ 3 & 1 & 1 \end{bmatrix}$$

2. If $\cos^{-1}\left(\frac{y}{n}\right) = \log\left(\frac{x}{b}\right)^n$ prove that

$$x^2 y_{n+2} + (2n+1)xy_{n+1} + 2n^2 y_n = 0$$

3. Solve $q = px + p^2$.



TAMIL NADU OPEN UNIVERSITY
Chennai-25.
B.Sc Maths – First Year
HOME ASSIGNMENT

Programme Code No : 181
Programme Name : B.Sc., Physics
Course Code & Name : BMSSA-22 ALLIED MATHEMATICS - 2
Batch : AY 2021-22
No. of Assignment : 02
Maximum CIA Marks : 15Marks (Average of total no. of Assignments)

ASSIGNMENT -1

Max: 15 Marks

Answer any ONE of the following three questions.

1. Find y_6 if $y_0 = 9, y_1 = 18, y_2 = 20, y_3 = 24$, given that the third differences are constant.
2. Change the order of integration $\int_0^a \int_{x^2}^{2a-x} xy \, dy \, dx$ and hence evaluate it.
3. (i) Find $L\left(\frac{\cos 3t - \cos 2t}{t}\right)$.
(ii) Find $L^{-1}\left(\frac{7s-1}{(s+1)(s+2)(s+3)}\right)$.

ASSIGNMENT -2

Max: 15 Marks

Answer any ONE of the following three questions.

1. From the following table ,find the value of y when $x = 84$

x	40	50	60	70	80	90
y	184	204	226	250	276	304

2. Solve $y'' + 6y' + 9y = 6t^2 e^{-3t}$, $y(0) = y'(0) = 0$ by using Laplace transform techniques.
3. Obtain the rank correlation coefficient for the following data

X	68	64	75	50	64	80	75	40	55	64	
Y	62	58	68	45	81	60	68	48	50	70	