

23.07.19 T.T Physics Time: 45 Mins
 STD: XII (A,B,C) Marks:30
 I. Choose the correct answer: 5x1=5

- The unit of magnetizing field is _____.
 a) Am^{-2} b) Am^{-1} c) Am^3 d) Am^{-3}
- Which among the following is the formula to calculate Biot-Savart law?
 a) $dB = \frac{\mu_0}{4\pi} \frac{Idl \times r}{r^2}$ b) $dB = \frac{\mu_0}{4\pi} \frac{Idl}{r^3}$ c) $\vec{dB} = \frac{\mu_0}{4\pi} \frac{Idl \times \hat{r}}{r^2}$ d) $\vec{dB} = \frac{\mu_0}{4\pi} \frac{Idl \times \hat{r}}{r^2}$
- In isotopic medium relative permeability is _____.
 a) scalar b) vector c) both scalar and vector d) zero
- The reduction factor of tangent galvanometer is _____.
 a) $K = \frac{2RB_H}{\mu_0 N}$ b) $K = \frac{RB_H}{\mu_0 N}$ c) $K = \frac{R^2 B_H}{\mu_0 N}$ d) $K = \frac{RB^2_H}{\mu_0 N}$
- Which among the following is an example for permanent magnets?
 a) Alnico b) Soft iron c) Nickel d) Mumetal

II. Answer any 3 of the following: 3x2=6

- Using the relation $\vec{B} = \mu_0(\vec{H} + \vec{M})$, show that $X_m = \mu_r - 1$
- Define Tangent law.
- Differentiate between Diamagnetic and paramagnetic substances.
- Define Maxwell's right hand cork screw rule.

III. Answer any 3 of the following: 3x3=9

- Explain the applications of hysteresis loop.
- State and explain Biot-Savart law.
- i) Compute the intensity of magnetization of the bar magnet whose mass, magnetic moment and density are 200g, 2Am^2 and 8gcm^{-3} respectively.
 ii) Define magnetic susceptibility.
- Define Curie's law and Curie-weiss law.

IV. Answer any 2 of the following: 2x5=10

- Derive an expression for the magnetic field due to long straight conductor carrying current.
- Derive an expression for the magnetic field produced along the axis of the current carrying circular coil.
- Derive an expression for Bohr Magnetron or magnetic dipole moment of revolving electron.

23.07.19 T.T Business Maths Time: 45 Mins
 STD: XII (I,J) Marks:30
 I. Choose the correct answer: 5x1=5

- Area bounded by the curve $y = \frac{1}{x}$ between the limits 1 and 2 is
 a) log 5 sq.unit b) log 3 sq.unit c) log 2 sq.unit
 d) log 4 sq.unit
- If the marginal revenue function of a firm is $MR = \frac{e^{-x}}{10}$, then revenue is _____.
 a) $10(1 - e^{-10})$ b) $1 - e^{-\frac{x}{10}}$ c) $-10e^{-x}$ d) $10(1 - e^{-\frac{x}{10}})$
- The profit of a function p(x) is maximum when _____.
 a) $MC=0$ b) $MC-MR=0$ c) $MR=0$ d) $MC+MR=0$
- Area bounded by $y=x$ between the lines $y=1$, $y=2$ with y axis is
 a) $\frac{1}{2}$ sq.units b) $\frac{5}{2}$ sq.units c) $\frac{3}{2}$ sq.units d) 1 sq.unit
- If MR and MC denotes the marginal revenue and marginal cost functions, then the profit function is _____.
 a) $P = \int (MR - MC)dx + k$ b) $P = \int (MR + MC)dx + k$
 c) $P = \int (MR)(MC)dx + k$ d) $P = \int (R - C)dx + k$

II. Answer any 5 of the following: 5x3=15

- Find the area bounded by $y=x$ between the lines $x=-1$ and $x=2$ with x-axis.
- Find the area bounded by $y=4x+3$ with x-axis between the lines $x=1$ and $x=4$.
- Calculate the area bounded by the parabola $y^2=4ax$ and its latus rectum.
- If the marginal revenue function for a commodity is $MR=9-4x^2$. Find the demand function.
- If the Marginal revenue function is $c'(x)=1500-4x-3x^2$. Find the cost function and average cost function.
- If the marginal cost function of x units of output is $\frac{c}{\sqrt{cx+d}}$ and if the cost of output is zero. Find total cost as a function of 'x'.

III. Answer any 2 of the following: 2x5=10

- Elasticity of a function $\frac{E_y}{E_x}$ is given by $\frac{E_y}{E_x} = \frac{-7x}{(1-2x)(2+3x)}$. Find the function when $x=2$, $y=\frac{5}{8}$.
- Using integration, find the area of the region bounded by the line $y-1=x$, the x-axis and the ordinates $x=-2$, $x=3$.
- Using integration find the area of the circle whose center is at the origin and the radius is a units.

EVERWIN MATRIC. HR. SEC. SCHOOL

23.07.19 T.T Accountancy Time: 45 Mins
 STD: XII (F,G,H) Marks:30
 I. Answer the following: 2x5=10

1. How the following items will appear in the final accounts of a club for the year ending 31st March 2019?

Receipts and payment a/c for the year ended 31st March, 2019

Dr		Cr	
Receipts	₹	₹	Payments
To Subscription			
2017-2018	5,000		
2018-2019	48,000		
2019-2020	3,000	56,000	

There are 300 members in the club each paying an annual subscription of ₹200 per annum. Subscription still outstanding for the year 2017-2018 is ₹ 1000.

2. How will the following appear in final account of Karaikudi sports club for the year ending 31st March, 2019?

Particulars	₹
Tournament fund on 1 st April 2018	90,000
Tournament fund investment as on 1 st Apr 2018	90,000
Interest received on tournament fund investment	9,000
Donation to tournament fund	10,000
Tournament expenses	60,000

II. Answer the following: 2x10=20

3. From the following Receipts and payment account of Trichy Recreation Club, prepare Income and Expenditure account for the year ended 31.03.2018.

Receipts	₹	Payments	₹
To opening balance		By furniture purchased	10,000
Cash in hand	11,000	By Rent	2,800
To Dividend received	27,600	By Secretary's honorarium	15,000
To sale of old newspaper	3,000	By postage	1,700
To member's subscription	31,000	By General expenses	4,350
To Locker Rent	8,000	By printing & stationery	45,000
To interest on investments	1,250	By Audit fees	5,000
To sale of furniture (Book value ₹ 4,400)	5,000	By closing balance cash in hand	3,000
	<u>86,850</u>		<u>86,850</u>

4. From the information given below, prepare receipts and payments a/c of Coimbatore Cricket Club for the year ending 31st March 2019.

Particulars	₹	₹	Particulars	₹
Bank overdraft (1.4.18)		6,000	Honorarium paid	2,800
Cash in hand (1.4.18)		1,000	Water & electricity Charges	700
Wages paid for grand maintenance		2,000	Match expenses	2,600
Subscription received:			Sports Material Purchased	1,900
Previous year	500		Match & fund receipts	5,200
Current year	9,600		Legacies received	2,000
Subsequent year	400			
		10,500	Wages yet to be paid	2,200
Interest on loan paid		2,000	Donation received for pavilion	2,000

23.07.19 T.T - Maths Time: 45 Mins
 STD: XII (D,E) Marks:30
 I. Choose the correct answer: 5x1=5

1. The augmented matrix of a system of linear equations is

$$\begin{pmatrix} 1 & 2 & 7 & 3 \\ 0 & 1 & 4 & 6 \\ 0 & 0 & \lambda - 7 & \mu + 5 \end{pmatrix}$$

The system has infinitely many solutions if

- 1) $\lambda=7, \mu \neq -5$ 2) $\lambda=-7, \mu = 5$ 3) $\lambda \neq 7, \mu \neq -5$
 4) $\lambda=7, \mu = -5$

2. If $P(A)=P\left(\begin{smallmatrix} A \\ B \end{smallmatrix}\right)$, then the system $AX=B$ of linear equations is

- 1) consistent and has a unique solution
 2) consistent 3) inconsistent
 4) consistent and has infinitely many solution

3. The rank of the matrix $\begin{pmatrix} 1 & 2 & 3 & 4 \\ 2 & 4 & 6 & 8 \\ -1 & -2 & -3 & -4 \end{pmatrix}$ is _____.

- a) 1 2) 2 3) 4 4) 3

4. If $A = \begin{pmatrix} 3 & 4 \\ 5 & 5 \\ x & 3 \\ 5 & 5 \end{pmatrix}$ and $A^T = A^{-1}$, then the value of x is _____.

- 1) $\frac{-4}{5}$ 2) $\frac{-3}{5}$ 3) $\frac{3}{5}$ 4) $\frac{4}{5}$

5. If $A^T A^{-1}$ is symmetric then $A^2 =$ _____.

- 1) A^{-1} 2) $(A^T)^2$ 3) A^T 4) $(A^{-1})^2$

II. Answer for any 5 questions: 5x5=25

6. By using Gaussians elimination method, balance the chemical reaction equation: $C_2H_6 + O_2 \rightarrow H_2O + CO_2$

7. Determine the value of λ for which the following system of 3 equations i) a unique solution ii) a non-trivial solution.

8. Solve the following system of homogeneous equation

$$3x+2y+7z=0, 4x-3y-2z=0, 5x+9y+23z=0.$$

9. A boy is walking along the path $y=ax^2+bx+c$ through the points $(-6,8)$ $(-2,-12)$ and $(3,8)$. He wants to meet his friend at $P(7,60)$.

Will he meet his friend? (Use Gaussian elimination method)

10. Test for consistency and if possible, solve the system of equations by rank method $3x+y+z=2$; $x-3y+2z=1$; $7x-y+4z=5$.

11. Investigate the values of λ and μ the system of linear equations $2x+3y+5z=9$, $7x+3y-5z=8$, $2x+3y+\lambda z=\mu$ have
 i) no solution ii) a unique solution iii) an infinite number of solutions.

23.07.19 T.T - Computer Application Time: 45 Mins
 STD: XII (I,J) Marks:30
 I. Answer any 4 of the following: 4x2=8

1. List out system defined function and what is meant by system defined function.

2. What is parameterized function?

3. Write array syntax in PHP.

4. What is conditional statements? Write its type.

5. Write the syntax of switch statement.

II. Answer any 4 of the following: 4x3=12

6. Explain if else statement with example.

7. Explain if else if statement with example.

8. Write the purpose of parameterized function.

9. Differentiate Associative array and Multidimensional array.

10. Write short notes on array.

III. Answer any 2 in detail: 2x5=10

11. Explain indexed array and associative array in php.

12. Explain function concept in PHP.

13. Explain Multibranching statement with example.