



E-NOTICE

Date - 17/02/2022

Subject : BTECH 1ST YEAR ASSIGNMENT QUESTION

B.TECH-1ST SEM (CSE)-THEORY

PAPER NAME : PHYSICS-I

PAPER CODE : BS-PH-101(For CSE)

1. Find the directional derivative of $\phi = x^2yz + 4xz^2$ at $(1, -2, -1)$ along the direction $2\hat{i} - \hat{j} - 2\hat{k}$.
2. Differentiate between M-B, F-D, B-E statistics.
3. Define polarization with example.
4. What are the condition to get sustained interference pattern ?
5. Distinguish between polar and axial vector with example.

PAPER NAME : CHEMISTRY-I

PAPER CODE : BS-CH-101(For AEIE)

- A. Deduce schrodinger wave equation.
- B. Calculate the bond order of O_2 , O_2^+ , O_2^-
- C. Draw Pi-molecular orbital diagram of butadiene molecule.
- D. Calculate the magnetic moment of Mn^{2+} system.
- E. Explain why N_2 molecule is diamagnetic but O_2 molecule is paramagnetic?

PAPER NAME : MATHEMATICS

PAPER CODE: BS-M101-IA (For CSE)

Answer the following questions.

- 1 a) Find a basis of R^3 containing the vectors $(1, 1, 0)$, $(1, 1, 1)$.

- b) Test the convergence of $\int_0^1 \frac{dx}{x(1-x)}$

- 2.a) Find the rank of $\begin{bmatrix} -1 & 2 & -1 & 0 \\ 2 & 4 & 4 & 2 \\ 0 & 0 & 1 & 5 \\ 1 & 6 & 3 & 2 \end{bmatrix}$

- b) If $I_n = \int_0^{\pi} x^n \sin x \, dx$ ($n > 1$), show that $I_n + n(n-1)I_{n-2} = n\left(\frac{\pi}{2}\right)^{n-1}$.

- 3.a) If $A = \begin{pmatrix} 1 & 0 & 2 \\ 0 & -1 & 1 \\ 0 & 1 & 0 \end{pmatrix}$, then verify that A satisfies its own characteristic equation. Hence find A^{-1} and A^3 .

- b) Given the system of equations:

$$x + 4y + 2z = 1$$

$$2x + 7y + 5z = 2k$$

$$4x + my + 10z = 2k + 1$$

Find for what values of k and m the system has (i) a unique solution (ii) no solution (iii) many solution

4. a) Establish a relation between Beta and Gamma function. .

- b) Find the reduction formula for $\int_0^{\pi} \sin^m x \cos^n x \, dx$; $m (> 1)$, $n (> 1)$ being positive integers.

5. a) Show that the transformation $T: R^2 \rightarrow R^3$ defined by $T(x, y) = (x - y, x + y, y)$ is a liner transformation.

- b) Determine the values of a, b such that $\lim_{x \rightarrow 0} \frac{x(1+a \cos x) - b \sin x}{x^3} = 1$

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Date - 17/02/2022

NAME : MATHEMATICS

PAPER CODE: BS-M102-1B (For AEIE)

1. If $u = x^2 - 2y, v = x + y + z, w = x - 2y + 3z$ find $\frac{\delta(u,v,w)}{\delta(x,y,z)}$.
2. Expand the following function in power of x , in infinite series $\log(1+x), -1 < x \leq 1$
3. If $u = \tan^{-1} \frac{x^2+y^2}{x+y}$, show that $x \frac{\delta u}{\delta x} + y \frac{\delta u}{\delta y} = \frac{1}{2} \sin 2u$
4. Find inverse of $= \begin{bmatrix} 1 & -2 & 2 \\ 2 & -3 & 6 \\ 1 & 1 & 7 \end{bmatrix}$.
5. Test the convergence of the series $\sum_{n=1}^{\infty} \frac{n!2^n}{n^n}$.

PAPER NAME: BASIC ELECTRICAL ENGG.-I

PAPER CODE: ES-EE-101

1. Write about Nodal Analysis with an example.
2. Short Note: Voltage regulation, Transformer efficiency.
3. What is the Peak Value, RMS value ?
4. Discuss about the mesh analysis of a circuit.
5. What is Ideal Transformer? Write the characteristics of its.

B.TECH-1ST SEM (CSE)-PRACTICAL

PAPER NAME : PHYSICS-I LAB

PAPER CODE : BS-PH-191(For CSE)

A) Answer any TWO of the following question:

2×20=40

1. Determination of thermal conductivity of a bad conductor by Lees and Charlton's method.
2. Determination of dispersive power of the material of given prism.
3. Determination of young's modulus by Flexure method and calculation of bending moment and shear force at a point on beam.
4. Determination of wavelength of light by Newton's ring method.
5. Use of carry foster's bridge to determine unknown resistance.

PAPER NAME : CHEMISTRY-I LAB

PAPER CODE : BS-CH-191(For AEIE)

- A. Define alkalinity of water. Name two acid-base indicators.
- B. Write down the theory of conductometric titration of strong acid against strong base.
- C. Define conductance. Draw the conductometric titration curve of strong acid against strong base.
- D. Define pH. Write down the theory of pH-metric titration.

PAPER NAME : BASIC ELECTRICAL ENGINEERING LAB

PAPER CODE : BS-EE-191(For AEIE & CSE)

A) Answer any TWO of the following question:

2×20=40

1. Calibration of ammeter and Wattmeter.
2. Determination of steady state and transient response of R-L, R-C and R-L-C circuit to a step change in voltage.
3. Determination of steady state response of R-L and R-C and R-L-C circuit and calculation of impedance and power factor.
4. Determination of resonance frequency and quality factor of series and parallel R-L-C circuit.

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Date - 17/02/2022

PAPER NAME : WORKSHOP PRACTICE

PAPER CODE : ES-ME-192 (For CSE)

A) Answer any TWO of the following question:

2×20=40

1. What are common materials used for pattern making? Discuss advantages and disadvantages of wood using pattern making.
2. Classified drill. Sketch a twist drill and named it various parts.
3. What are the procedures commonly done in bench working and fitting shop describe briefly.
4. Differentiate between the following –
 - i. Mallet and Hammer
 - ii. Tapping and Dieing

PAPER NAME : WORKSHOP PRACTICE

PAPER CODE : ES-ME-191 (For AEIE)

A) Answer any TWO of the following question:

2×20=40

1. Write the following letters in 6:5 ratio,single stroke type with letter height of 18mm.
2. Divide a circle of 70mm diameter in to 24 equal sectors using the set square only.
3. Construct a vernier scale to read cm and up to 4m having a scale factor .04. Mark a distance of 2.36m on it.
4. Construct an ellipse having major axis 100 mm and minor axis 70 mm.

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