

Mid Exam

Branch :- Civil, Sub. Physics, Sem II

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Q.1 What is international system of unit? Describe the system with base units, derived units and supplementary units.

Q.2 Check the correctness of following equation by dimensional formula method:

$$T = 2\pi \sqrt{\frac{I}{g}}$$

Q.3 The least count of vernier caliper is 0.01 cm and its zero error is +0.07 cm. At the time of finding length of rod, main scale reading is 4.21 cm. & that vernier caliper is 5 cm. then find the length of rod.

Q.4 What is refraction of light? What are the laws of refraction?

Q.5 Write the principle of laser light.

Q.6 Write short note on:- (any two)

- (a) Helium - Neon laser.
- (b) Newton's corpuscular theory of light.
- (c) Huygens wave theory of light.

Q.7 What is wavefront? also write its types

Q.8 What is interference? Write down the conditions of interference.

Q.9 Write the mathematical expression of interference.

Q.10 Define the following terms in waves:

- (a) Diffraction
- (b) Polarisation
- (c) Dispersion of light

MamtaKachale 23 June @gmail.com.

L.E. (Civil) Ist year IInd Sem.

Sub: Maths Ist mid exam

MM. 20

Attempt all Qs.

Q.1) Resolve into partial fraction

आंशिक भिन्न में व्यक्त कीजिए

$$\frac{2x+1}{(x+2)(x-3)^2}$$

(3)

Q.2) If matrix $\begin{bmatrix} 1 & 3 & x+2 \\ 2 & 4 & x+8 \\ 3 & 5 & 10 \end{bmatrix}$ is singular then find $x = ?$ (2)
(213 आक्यूड) (आयुक्तता शून्य (विनि) तो x ज्ञात करो।)

Q.3) If $A+B = \frac{\pi}{4}$ then show that $(1+\tan A)(1+\tan B) = 2$ (2)
(213) (तो सिद्ध कीजिए)

Q.4) Find A^{-1} (ज्ञात करो) $A = \begin{bmatrix} 2 & 3 & 4 \\ 4 & 3 & 1 \\ 1 & 2 & 4 \end{bmatrix}$ (4)

Q.5) If $\sin A = \frac{1}{3}$ $\cos B = \frac{2}{5}$ then find $\sin(A+B) = ?$ $\cos(A-B) = ?$ (3)
(213) (तो ज्ञात करो)

Q.6) If $A = \begin{bmatrix} 2 & -1 \\ 3 & 4 \end{bmatrix}$ and $B = \begin{bmatrix} 3 & 4 \\ 2 & 5 \end{bmatrix}$ then prove that $(A \times B)' = B' \times A'$ (2)

Q.7) Prove that सिद्ध कीजिए $\begin{vmatrix} b+c & a & b \\ c+a & c & a \\ a+b & b & c \end{vmatrix} = (a+b+c)(a-b)^2$ (2)

Q.8) Find constant term in expansion of $(x + \frac{1}{x})^{2n}$ (2)
($x + \frac{1}{x}$)²ⁿ के प्रसार में अचर पद ज्ञात कीजिए।