

1ST INTERNAL EXAM (SSIT POLYTECHNIC) 2023-2024(winter)

SUBJECT- Engineering Mathematics-I

BRANCH-Civil Engg/ EE Engg/ EE(I&C) Engg/Mech Engg (1stsem)

TIME:1 HOURS

MAXIMUM MARKS:20

1. Answer all the question

2×5 =10

(a) If $A = \begin{bmatrix} 2 & 4 \\ 3 & 13 \end{bmatrix}$ and $I = \begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$, Then Find $A - \alpha I$.

(b) IF $A = \begin{bmatrix} 1 & -1 \\ 0 & 0 \end{bmatrix}$ Then prove that $A^2 = A$.

(c) Find x the y if $\begin{bmatrix} 2 & 1 \\ 3 & 4 \end{bmatrix} \begin{bmatrix} x \\ y \end{bmatrix} = \begin{bmatrix} 1 \\ -1 \end{bmatrix}$

(d) Find the value of $\cos 15^\circ$.

(e) Find the value of a so that the point (1,4) (2,7) ,(3,a) are Collinear.

2. Answer all question

5×2=10

(A) If $(A+B) = 45^\circ$, Find the value of $(1+\tan A) (1+\tan B)$.

(B) Find the centre and radius of circle . $2x^2+2y^2-5x+3y-11=0$

*****ALL THE BEST*****