FY BTECH SEM- I

APPLIED MATHEMATICS-I

TUTORIAL-7

Assignment on Self Study Topics

DIV- P1

INSTRUCTIONS:

- Write your name, Roll no. & batch on right hand side top corner of each page of solution.
- Write question at the beginning of the solution.
- Maintain proper flow of solution while scanning/ inserting images.
- Solution must be uploaded such that it is vertically visible.
- Solution must be focused and readable.
- No. of Uploads allowed: only 1 file (pdf/word)
- No. of attempts allowed: 1

QUESTIONS:

Q.1 Using De Moivre's Theorem prove that $\frac{\sin 6\theta}{\sin 2\theta} = 16\,cos^4\theta - 16\,cos^2\theta + 3$ (6 MARKS)

Q.2 Prove that $cos^8\theta + sin^8\theta = \frac{1}{64}[\cos 8\theta + 28\cos 4\theta + 35]$. (6 MARKS)

Q.3 Show that the $adj(adjA)$ of $A = \frac{1}{9}\begin{bmatrix} -1 & -8 & 4 \\ -4 & 4 & 7 \\ -8 & -1 & -4 \end{bmatrix}$ is A itself (6 MARKS)

Q.4 If $A(\alpha) = \begin{bmatrix} cos\alpha & -sin\alpha & 0 \\ sin\alpha & \cos\alpha & 0 \\ 0 & 0 & 1 \end{bmatrix}$ Prove that $[A(\alpha)]^{-1} = A(-\alpha)$ (5 MARKS)