VERSION CODE
D

Answer Sheet No.							

K I I T U N I V E R S I T Y

K I I T E E – 2 0 11

QUESTION BOOKLET

B.TECH(4 YEARS) / B.TECH & M.TECH –DUAL DEGREE/ B.TECH & MBA – DUAL DEGREE/ BIOTECH - DUAL DEGREE
PART-II

(PAGES: 25 - 40)

MATHEMATICS

Candidate's Signature Invigilator's Signature

Roll No. _____

101. If $\cos\theta+\cos^2\theta+\cos^3\theta=1$ and $\sin^6\theta=a+b\sin^2\theta+c\sin^4\theta$ then $a+b+c$ is equal to

(A) 0 (B) 1 (C) -1 (D) 2

102. The number of values of x in $[0,5\pi]$ satisfying $3\cos 2x-10\cos x+7=0$ are

(A) 4 (B) 8 (C) 6 (D) 10

103. Taking only principal values, the values of $\cos^{-1}\left(-\frac{1}{2}\right)+\sin^{-1}\left(-\frac{\sqrt{3}}{2}\right)$ is equal to

(A) $\frac{2\pi}{3}$ (B) $-\frac{\pi}{3}$

(C) $\frac{\pi}{3}$ (D) $\frac{\pi}{4}$

104. The range of x for which the formula $2\sin^{-1}x=\sin^{-1}(2x\sqrt{1-x^2})$ holds is

(A) $\frac{1}{\sqrt{2}}\le x\le\frac{1}{2}$ (B) $-\frac{1}{\sqrt{2}}\le x\le\frac{1}{\sqrt{2}}$

(C) $-\frac{1}{\sqrt{3}}\le x\le 1$ (D) $-\frac{1}{\sqrt{2}}\le x\le 1$

105. The values of x which satisfy the equation $6\sin^{-1}\left(x^2-6x+\frac{17}{2}\right)=\pi$ are

(A) 2, 4 (B) 3,1
(C) 1,3 (D) -1,-2

106. Find the non zero value of x for which the matrix $A=\begin{pmatrix}1 & -3 & 4\\ -5 & x+2 & 2\\ 4 & 1 & x-6\end{pmatrix}$ is singular.

(A) 21 (B) 19
(C) 35 (D) 17

107. Find the values of x & y for which the matrix $S=A^2-xA+yI$ turns out to be null matrix where $A=\begin{pmatrix}4 & 3\\ 2 & 5\end{pmatrix}$?

(A) x=3,y=5 (B) x=5,y=7
(C) x=9,y=14 (D) x=7,y=13