# 2021-July
# Session-20-07-2021-shift-2-16-20

EE24BTECH11038 - MALAKALA BALA SUBRAHMANYA ARAVIND

16) The value of $\tan\left(2\tan^{-1}\frac{3}{5}+\sin^{-1}\frac{5}{13}\right)$ is:

a) $\frac{220}{21}$

b) $\frac{110}{21}$

c) $\frac{55}{21}$

d) $\frac{20}{11}$

17) If $(\alpha,\beta)$ is the point on $y^2 = 6x$, that is closest to $\left(3,\frac{3}{2}\right)$ then find $2(\alpha+\beta)$

a) 6
b) 9
c) 7
d) 5

18) Two circles pass through $(-1,4)$ and their centres lie on $x^2+y^2+2x+4y=4$. If $r_1$ and $r_2$ are maximum and minimum radii and $\frac{r_1}{r_2}$ = a+ $\sqrt{2}$b, then the value of a+b is

a) 3
b) 11
c) 5
d) 7

19) If $\triangle ABC$ is a right-angled triangle with sides a,b and c and smallest angle $\theta$. If $\frac{1}{a}$, $\frac{1}{b}$ *and* $\frac{1}{c}$ are also the sides of the right-angle triangle then find $\sin\theta$.

a) $\sqrt{\frac{\left(3-\sqrt{5}\right)}{2}}$

b) $\frac{\left(3-\sqrt{5}\right)}{2}$

c) $\sqrt{\frac{\left(3+\sqrt{5}\right)}{2}}$

d) $\frac{\left(3+\sqrt{5}\right)}{2}$

20) For the natural numbers m,n if $(1-y)^m(1+y)^n$=1+$a_1y+a_2y^2+a_3y^3+.....a_{m+n}y^{m+n}$ and $a_1 = a_2 = 10$, then the value of $(m+n)$ is equal to

a) 88
b) 64
c) 100

d) 80