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## MATHS

## BOOKS - JEE MAINS PREVIOUS YEAR

## TRIGONOMETRIC FUNCTIONS

## Others

1. $A B$ is a vertical pole with $B$ at the ground
level and A at the top. A man finds that the angle of elevation of the point $A$ from $a$
certain point C on the ground is 60 o . He moves away from the pole along the line $B C$ to a point D such that $C D=7 m$. From D the angle of elevation of the point A is 45 o . Then the height of the pole is (1) $\frac{7 \sqrt{3}}{2} \frac{1}{\sqrt{3}-1} m$
(2) $\frac{7 \sqrt{3}}{2} \sqrt{3}+1 m \quad$ (3) $\frac{7 \sqrt{3}}{2} \sqrt{3}-1 m$
$\frac{7 \sqrt{3}}{2} \frac{1}{\sqrt{3}+1} m$

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2. Let $A$ and $B$ denote the statements $A:$
$\cos a+\cos b+\cos g=0$
B
$\sin a+\sin b+\sin g=0$
$\cos (b g)+\cos (g a)+\cos (a b)=3 / 2$, then (1)
$A$ is true and $B$ is false (2) $A$ is false and $B$ is
true (3) both $A$ and $B$ are true (4) both $A$ and $B$ are false

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3. $\int_{0}^{\pi}[\cot x] d x$, where [.] denotes the greatest integer function, is equal to (1) $\pi / 2$
(2) 1 (3) $1(4) \pi / 2$
4. For a regular polygon, let $r$ and $R$ be the radii of the inscribed and the circumscribed circles. A false statement among the following is There is a regular polygon with $\frac{r}{R}=\frac{1}{\sqrt{2}}$
(17) There is a regular polygon with $\frac{r}{R}=\frac{2}{3}$
(30) There is a regular polygon with $\frac{r}{R}=\frac{\sqrt{3}}{2}$ (47) There is a regular polygon with $\frac{r}{R}=\frac{1}{2}$ (60)
5. In a $\triangle P Q R$, if $3 s \in P+4 \cos Q=6$ and
$4 s \in Q+3 \cos P=1$, then the angle R is
equal to (1) $\frac{5 \pi}{6}$ (2) $\frac{\pi}{6}$ (3) $\frac{\pi}{4}$ (4) $\frac{3 \pi}{4}$

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