Step Academy official

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STUDENT NAME	
PAPER CODE	31095
TIME ALLOWED	60
Paper Date	09-02-2026

CLASS	New 1st Year (FSC/ICS)
SUBJECT	Mathematics
TOTAL MARKS	25
Paper Type	

Q1. **Choose the correct answer.** **5X1=5**

1. The angles $90^o \pm\theta$, $180^o \pm\theta$, $270^o \pm\theta$, $360^o \pm\theta$ are the ..... angle:

(A) Composite **(B)** Half **(C)** Quadrantal **(D)** Allied

2. Sin (-300^o)=.....:

(A) $\frac{\sqrt{3}}{2}$ **(B)** 0 **(C)** 2 **(D)** 3

3. $cot(\pi/2-\beta)=$:

(A) Sin β **(B)** Cot β **(C)** - Cot β **(D)** Tan β

4. $\tan\left(\frac{3\pi}{2}-\theta\right)$ is equal to:

(A) Tan θ **(B)** -Cot θ **(C)** Cot θ **(D)** - tan θ

5. If $\sin 2\theta = 1$ then value of θ is .....:

(A) 30^o **(B)** 45^o **(C)** 60^o **(D)** 90^o

Q2. **write the answers of following questions.** **5X2=10**

1. Without using the table, find the value of: cos (-240^o).

2. Show that: $cot\ (\alpha-\beta)=\frac{cot\ \alpha\ cot\ \beta\ +1}{cot\ \beta\ -\ cot\ \alpha}$

3. If α,β,γ are the angles of a triangle ABC, show that: $cot\frac{\alpha}{2}+cot\frac{\beta}{2}+cot\frac{\gamma}{2}=cot\frac{\alpha}{2}cot\frac{\beta}{2}cot\frac{\gamma}{2}$.

4. Prove that: $\sin\left(\frac{\pi}{4}-\theta\right)\sin\left(\frac{\pi}{4}+\theta\right)=\frac{1}{2}\cos 2\theta$

5. Express sin 5x+ sin 7x as a product.

Q3. **write the answers of following questions.** **2X5=10**

1. Show that $\cos 20^o \cos 40^o \cos 80^o = \frac{1}{8}$.

2. Prove that: $\sin\left(\frac{\pi}{4}-\theta\right)\sin\left(\frac{\pi}{4}+\theta\right)=\frac{1}{2}\cos 2\theta$