Step Academy official

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STUDENT NAME	
PAPER CODE	33173
TIME ALLOWED	60
Paper Date	01-02-2026

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

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

1. $(-1+\sqrt{-3})^5+(1-\sqrt{3})^5=.....$

(A) 16 **(B)** 48 **(C)** -32 **(D)** -1

2. If ω is complex cube root of unity then value of $(3+\omega)(3+\omega^2)=?$

(A) 6 **(B)** 7 **(C)** 9 **(D)** 13

3. A complex number $1+i$ can also be expressed as:

(A) $2(\cos 60^o+i\sin 30^o)$ **(B)** $\cos 60^o+i\sin 30^o$ **(C)** $2(\cos 60^o+i\sin 60^o)$ **(D)** $\cos 30^o+i\sin 30^o$

4. $\left(\cos\frac{\pi}{6}+i\sin\frac{\pi}{6}\right)$ is equal to .....:

(A) 1 **(B)** 0 **(C)** -1 **(D)** i

5. If $Z=-7-24i$ then real part of $\sqrt{Z}$ is:

(A) 2 **(B)** 3 **(C)** 4 **(D)** 1

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

1 . Find the real values of x and y in the following: $(x+iy)(1-i)=(2-3i)(-5+5i)\left(-i\frac{3}{5}\right)$

2 . If $(3+2i)(x+iy)=5+12i$ *where* $x,y\in R$, then find the value of x and y.

3 . Find the roots of $z^4+7z^2-144=0$ and hence express it as a product if linear factors.

4 . Factorize the polynomial $P(z)=z^3+(1+i)z^2+iz$

5 . If $z=x+iy$ and $W=\frac{1-iz}{z-i}$ *show that* $|W|=1\Rightarrow z$ *is real*?

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

1 .

Evaluate: $\left(\frac{-1+\sqrt{-3}}{2}\right)^7+\left(\frac{-1-\sqrt{-3}}{2}\right)^7$

2 . Prove that: $\left(\frac{i+\sqrt{3}}{2}\right)^8+\left(\frac{i-\sqrt{3}}{2}\right)^8=-1$