Questions 5 and 6

Consider the complex number $z = 4 - 4\sqrt{3}i$.

5 Select the option which is the modulus of z.

Options

A	2	**B**	4	**C**	8	**D**	12
E	16	**F**	32	**G**	48	**H**	$4\sqrt{3}$

6 Select the option which is the argument of z.

Options

A	$-\frac{5}{6}\pi$	**B**	$-\frac{2}{3}\pi$	**C**	$-\frac{1}{3}\pi$	**D**	$-\frac{1}{6}\pi$
E	$\frac{1}{6}\pi$	**F**	$\frac{1}{3}\pi$	**G**	$\frac{2}{3}\pi$	**H**	$\frac{5}{6}\pi$

Question 7

Select the option which is the Cartesian form of the complex number $e^{-i2\pi/3}$.

Options

A	$\frac{1}{2}(1+\sqrt{3}i)$	**B**	$\frac{1}{2}(1-\sqrt{3}i)$	**C**	$\frac{1}{2}(-1+\sqrt{3}i)$	**D**	$\frac{1}{2}(-1-\sqrt{3}i)$
E	$\frac{1}{2}(\sqrt{3}+i)$	**F**	$\frac{1}{2}(\sqrt{3}-i)$	**G**	$\frac{1}{2}(-\sqrt{3}+i)$	**H**	$\frac{1}{2}(-\sqrt{3}-i)$

Questions 8 and 9

The function $\cos^5\theta$ can be expressed in the form $a\cos\theta + b\cos 3\theta + c\cos 5\theta$, where a, b, and c are numbers.

8 What is the value of a?

9 What is the value of b?

Options for Questions 8 and 9

A	$-\frac{5}{8}$	**B**	$-\frac{5}{16}$	**C**	$-\frac{1}{8}$	**D**	$-\frac{1}{16}$
E	$\frac{1}{16}$	**F**	$\frac{1}{8}$	**G**	$\frac{5}{16}$	**H**	$\frac{5}{8}$

Question 10

Choose the option which is the phasor of the sinusoidal function

$$-3\cos\omega t - 2\sin\omega t,$$

where ω is a positive constant.

Options

A	$2+3i$	**B**	$2-3i$	**C**	$-2+3i$	**D**	$-2-3i$
E	$3+2i$	**F**	$3-2i$	**G**	$-3+2i$	**H**	$-3-2i$
