

Q1. Select and write the most appropriate answers from the given alternatives for each sub questions. 7

- The conjugate of $1+i$ is _____
a) $1-i$ b) $-i$ c) $1+i$ d) -1
- If $S_{kp} > 0$ the distribution is _____
a) negatively skewed b) positively skewed c) Symmetric d) Asymmetric
- If $Z=2-5i$ then $4Z=$ _____
a) $4-5i$ b) $8-40i$ c) $8-20i$ d) $2-20i$
- The formula for S_{kp} is _____
a) $\frac{\text{mean} - \text{mode}}{S.D}$ b) $\frac{\text{mean} - \text{mode}}{\text{variance}}$ c) $\frac{\text{mean} - Q_1}{Q_2}$ d) $\frac{Q_1 - Q_2}{2}$
- The value of $i+i^2 + i^3 + i^4$ is _____
a) 0 b) 1 c) $-i$ d) i
- Mean - Mode =
a) $3(\text{Mean} - \text{Median})$ b) $3(Q_2 - Q_1)$ c) $3(\text{SD} - \text{Mean})$ d) $3(\text{Mean} - \text{SD})$
- If $Z_1 = 2 + 3i$ and $Z_2 = 1 - 4i$ then $3Z_1 + 2Z_2$ is _____
a) $8+i$ b) $8-i$ c) $3-i$ d) $3+i$

Q.2 Attempt any two 4

- Express in the form of $a+ib$, $a, b \in R$, $i = \sqrt{-1}$ state the values of a and b
 $(1+2i)(-2+i)$
- For a distribution, mean=100, mode=127 and SD=60 Find the pearson coefficient of skewness S_{kp}
- Show that $(-1 + \sqrt{3}i)^3$ is a real number.
- For a data set, sum of upper and lower Quartile is 100, difference between upper and lower Quartile is 40 and median is 30. find the coefficient of skewness

Q3. Attempt any two 6

- The mean and variance of a distributions are 60 and 100 respectively. find the mode and the median of the distribution if $S_{kp} = -0.3$
- Simplify the following and express in the $a+ib$

$$\frac{4 + 3i}{1 - i}$$

3. For a data set with upper Quartile equal to 55 and median is 42. If the distribution is symmetric. Find the value of lower Quartile.

4. Solve the equation $x, y \in R$

$$\frac{x + iy}{2 + 3i} = 7 - i$$

Q.4 Attempt any two

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1. Find the value of $x^3 + 2x^2 - 3x + 21$ if $x = 1 + 2i$

2. For a distribution Bowley's coefficient of skewness is 0.6. The sum of upper and lower quartile is 100 and the median is 38. Find the upper and lower quartile.

3. Solve the equation $x, y \in R$

$$(4 - 5i)x + (2 + 3i)y = 10 - 7i$$

4. For a distribution the mean is 200, the coefficient of variation is 8% and Karl Pearson coefficient of skewness is 0.3. Find the mode and median of the distribution.