

# BOARD OF INTERMEDIATE & SECONDARY EDUCATION, RAHIM YAR KHAN

SUBJECT: Statistics EXAM Inter 2nd CLASS: 2nd year

GROUP: \_\_\_\_\_ DATE: 05.12.22

## (GENERAL INSTRUCTIONS FOR MARKING KEY)

Q. No. 5

$$\mu = 20, \sigma^2 = 25, \sigma = 5$$

(a)

$$(i) P(X < 30) = P\left(\frac{X - \mu}{\sigma} < \frac{30 - 20}{5}\right)$$

$$= P(X < 2)$$

$$= \Phi(2)$$

$$= 0.97725 \text{ Ans}$$

(2 marks)

(ii)

$$P(X > 25) = P\left(\frac{X - \mu}{\sigma} > \frac{25 - 20}{5}\right)$$

$$= P(Z > 1)$$

$$= 1 - P(Z < 1)$$

$$= 1 - \Phi(1)$$

$$= 1 - 0.84134$$

$$= 0.15866 \text{ Ans}$$

(2 marks)

Q. No. 5(b)

$$\mu = 60, \sigma^2 = 25, \sigma = 5$$

$$P(X < a) = 0.95$$

$$P\left(\frac{X - \mu}{\sigma} < \frac{a - \mu}{\sigma}\right) = 0.95$$

$$P\left(Z < \frac{a - 60}{5}\right) = 0.95$$

$$\Phi\left(\frac{a - 60}{5}\right) = 0.95$$

$$\frac{a - 60}{5} = \Phi^{-1}(0.95)$$

$$\frac{a - 60}{5} = 1.6449$$

$$a = 5 \times 1.6449 + 60$$

$$a = 68.2245 \text{ Ans}$$

(02 marks)

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تم نے دیکھا ہے اور اس پر عمل پیرا ہے۔ کسی قسم کی غلطی نہیں ہے۔

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