

BOARD OF INTERMEDIATE & SECONDARY EDUCATION, SAHIVAL

SUBJECT: MATH EXAM 2nd Annual 20 22 CLASS: Inter P-I
 GROUP: I DATE: 21-12-22

(GENERAL INSTRUCTIONS FOR MARKING KEY)

$$= \frac{17 \cdot 16!}{(11 \cdot 10!)(6 \cdot 5!)} \quad (1M)$$

$$= \frac{17!}{11! 6!} = {}^{17}C_6 = R.H.S \quad (1M)$$

(b)

$$y = \frac{1}{3} + \frac{{}^2_1 \cdot {}^3_1 \left(\frac{1}{3}\right) + {}^3_2 \cdot {}^2_1 \cdot {}^3_1 \left(\frac{1}{3}\right) + \dots}{2!}$$

$$1+y = 1 + \frac{1}{3} + \frac{{}^3_1 \cdot {}^2_1 \left(\frac{1}{3}\right) + {}^3_2 \cdot {}^2_1 \cdot {}^3_1 \left(\frac{1}{3}\right) + \dots}{3!} \quad (A)$$

Comparing R.H.S with (1M)

$$1 + nx + \frac{n(n-1)}{2!} x^2 + \dots$$

$$nx = \frac{1}{3} ; \frac{n(n-1)}{2!} x^2 = \frac{{}^3_1 \cdot {}^2_1 \left(\frac{1}{3}\right)}{2!}$$

$$x = \frac{1}{3n} ; \quad n(n-1)x^2 = \frac{1}{3} \quad (1M)$$

put value of x

$$n(n-1) \frac{1}{9n^2} = \frac{1}{3}$$

$$(n-1) = 3n$$

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تم نے درج بالا سپروائزر (اعضائے معتمدین) اور ہدایات کے حوالے سے مکمل طور پر تسلیم کر لی ہے۔ کسی قسم کی کوئی غلطی نہ ہے۔

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$$2n = -1$$

$$n = -\frac{1}{2}$$

$$\text{From (i)} \quad x = -\frac{2}{3} \quad (1M)$$

As we know

$$1 + nx + \frac{n(n-1)}{2!} x^2 + \dots = (1+x)^n$$

$$\text{So } {}^n_1 \cdot {}^{n-1}_2 \cdot \left(-\frac{1}{2}\right)$$

$$(1+x) = \left(1 - \frac{2}{3}\right)^{-1/2}$$

$$= \left(\frac{1}{3}\right)^{-1/2} = \sqrt{3} \quad (1M)$$

From (A)

$$1+y = \sqrt{3}$$

Taking Squaring of both sides

$$(1+y)^2 = (\sqrt{3})^2$$

$$y^2 + 1 + 2y = 3$$

$$y^2 + 2y - 2 = 0 \quad (1M)$$