

BOARD OF INTERMEDIATE & SECONDARY EDUCATION, SAHIALW

SUBJECT: MATH EXAM 2nd Annual 2022 CLASS: Inter P-I
GROUP: I DATE: 21-12-22

GENERAL INSTRUCTIONS FOR MARKING KEY

(V) 1 2 3 4 5 6 7 8 9 P/2

P	q	$\sim q$	$p \rightarrow q$	$\sim(p \rightarrow q)$	$p \wedge \sim q$	$\sim(p \rightarrow q) \rightarrow (p \wedge \sim q)$	$\sim(p \rightarrow q) \leftrightarrow (p \wedge \sim q)$
T	T	F	T	F	F	T	T
T	F	T	F	T	T	T	T
F	T	F	T	F	F	T	T
F	F	T	T	F	F	T	T

* $\sim(p \rightarrow q) \leftrightarrow (p \wedge \sim q)$ can be obtained from Columns and Column 6 directly

(vi) Groupoid: Correct def (1M)
Monoid: Correct def (1M)

$$X = A^{-1}B$$

$$X = \begin{bmatrix} 2 \\ -1 \end{bmatrix} \quad (1M)$$

$$x_1 = 2; x_2 = -1$$

(vii) $4x_1 + 3x_2 = 5$
 $3x_1 - x_2 = 7$

$$\begin{bmatrix} 4 & 3 \\ 3 & -1 \end{bmatrix} \begin{bmatrix} x_1 \\ x_2 \end{bmatrix} = \begin{bmatrix} 5 \\ 7 \end{bmatrix}$$

$$|A| = \begin{vmatrix} 4 & 3 \\ 3 & -1 \end{vmatrix} = -4 - 9 = -13 \neq 0$$

$$\text{Adj}(A) = \begin{bmatrix} -1 & -3 \\ -3 & 4 \end{bmatrix}$$

$$A^{-1} = \frac{\text{Adj}(A)}{|A|} = \frac{\begin{bmatrix} -1 & -3 \\ -3 & 4 \end{bmatrix}}{-13} \quad (1M)$$

(viii) L.H.S =

$$\begin{vmatrix} bc & ca & ab \\ 1/a & 1/b & 1/c \\ a & b & c \end{vmatrix}$$

$$= \frac{1}{abc} \begin{vmatrix} bc & ca & ab \\ 1 & 1 & 1 \\ a & b & c \end{vmatrix}$$

$$= \frac{1}{abc} \begin{vmatrix} bc & ca & ab \\ bc & ca & ab \\ a & b & c \end{vmatrix}$$

$$= \frac{1}{abc} (0) = 0 \quad (R_1 \text{ and } R_2 \text{ are identicals})$$

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تم نے درج بالا سوال پرچہ (انتظامیہ + معروضی) اور ہدایات کے حوالے سے مکمل طور پر تامل کر لی ہے۔ کسی قسم کی کوئی غلطی نہ ہے۔

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