

BOARD OF INTERMEDIATE AND SECONDARY EDUCATION, MULTAN.
OBJECTIVE KEY FOR INTERMEDIATE 2nd ANNUAL EXAMINATION, 2025.

Name of Subject: MathematicsGroup: Ist

Q. Nos	Paper Code 2191	Correct Answer	Paper Code 2193	Correct Answer	Paper Code 2195	Correct Answer	Paper Code 2197	Correct Answer
1	C	1	a	$x+1$	a	2π	C	2
2	a	$\sqrt{4}/q$	d	nC_r	d	Δ^2	a	-1
3	b	B	c	$n \cdot 2^{n-1}$	b	r_2	d	$\frac{1}{3}$
4	a	$k^3 A $	b	$\sqrt{3}/2$	d	2	b	$3n-2$
5	d	$8/7$	a	$-\cot\alpha$	c	$\pi/4$	a	$x+1$
6	C	2	C	II	C	1	d	nC_r
7	a	-1	a	2π	a	$\sqrt{4}/q$	C	$n \cdot 2^{n-1}$
8	d	$1/3$	d	Δ^2	b	B	b	$\sqrt{3}/2$
9	b	$3n-2$	b	r_2	a	$k^3 A $	a	$-\cot\alpha$
10	a	$x+1$	d	2	d	$8/7$	C	II
11	d	nC_r	C	$\pi/4$	C	2	a	2π
12	C	$n \cdot 2^{n-1}$	C	1	a	-1	d	Δ^2
13	b	$\sqrt{3}/2$	a	$\sqrt{4}/q$	d	$1/3$	b	r_2
14	a	$-\cot\alpha$	b	B	b	$3n-2$	d	2
15	C	II	a	$k^3 A $	a	$x+1$	C	$\pi/4$
16	a	2π	d	$8/7$	d	nC_r	C	1
17	d	Δ^2	C	2	C	$n \cdot 2^{n-1}$	a	$\sqrt{4}/q$
18	b	r_2	a	-1	b	$\sqrt{3}/2$	b	B
19	d	2	d	$\frac{1}{3}$	a	$-\cot\alpha$	a	$k^3 A $
20	C	$\pi/4$	b	$3n-2$	C	II	d	$8/7$
Cross Check	A B C D		A B C D		A B C D		A B C D	
Total	6455		6455		6455		6455	

سرٹیفکیٹ بابت صحیح سوالیہ پرچہ مارکنگ Key

ہم نے مضمون Maths Ist Year گروپ Ist میٹرک پہلا سالانہ امتحان 2024 کا سوالیہ پرچہ انشائیہ و معروضی (Subjective & Objective) کو بنظر عین چیک کر لیا ہے یہ پرچہ Syllabus کے عین مطابق Set کیا گیا ہے۔ اس سوالیہ پرچہ میں کسی قسم کی کوئی غلطی نہ ہے۔ ہم نے سوالیہ پرچہ کا اردو اور انگریزی Version بھی چیک کر لیا ہے۔ یہ Version آپس میں مطابقت رکھتے ہیں۔ نیز اس پرچہ کی معروضی (MCQs) Key کی بابت تصدیق کی جاتی ہے کہ اس میں بھی کسی قسم کی کوئی غلطی نہ ہے۔ مزید یہ کہ ہم نے Key بنانے سے متعلق دفتر کی جانب سے تیار کردہ ہدایات وصول کر کے ان کا بغور مطالعہ کر لیا ہے اور ان کی روشنی میں Key بنائی ہے۔ نیز سب ایگزامینرز کیلئے تفصیلی مارکنگ ہدایات / مارکنگ سکیم / Rubrics بھی تیار کر دی گئی ہیں۔

Prepared & Checked By:

Dated: _____

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5					

ہم نے درج بالا سوالیہ پرچہ (انشائیہ + معروضی) "Key" اور ہدایات کے حوالہ سے مکمل طور پر تصدیق کر لی ہے۔ کسی قسم کی کوئی غلطی نہ ہے۔

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تاریخ _____

موضوع: 25/11/25 مضمون: اہلی علی پرچہ: Part I گروپ: Ist

جنرل ہدایات برائے مارکنگ ہدایات (مارکنگ سکیم)

انٹرمیڈیٹ دوسرا سالانہ امتحان 2025

Sr #	Code	Error Indicated	Sr #	Code	Error Indicated
1.	UN	Un-Necessary	8.	SP	Spelling Error
2.	Ir	Irrelevant	9.	P	Punctuation
3.	IN	Incomplete	10.	Wo	Wrong word error
4.	EX	Extra	11.	Wt	Wrong Tense
5.	Rp	Re-Produced	12.	Wf	Wrong Form
6.	I	Insufficient	13.	OA	Over Attempt
7.	Gr	Grammar Error			

اہم نوٹ: ہر سوال "Full Award" سے کم نمبر لگانے کی صورت میں وجہ ضرور لکھیں۔

(Page No.1) مارکنگ Key اس صفحہ سے شروع کریں

Q.No.2

Ex No. 2

(i) $L.H.S = \frac{a}{c} + \frac{b}{c} = \frac{a \cdot 1}{c} + \frac{b \cdot 1}{c}$ (Multi prop)

$= a \cdot \frac{1}{c} + b \cdot \frac{1}{c}$ (oi m)

$= (a+b) \cdot \frac{1}{c}$ (Dist pro)

$= \frac{a+b}{c}$ (oi m)

(ii) $z = a + bi$, $\bar{z} = a - bi$ (oi m)
 $z + \bar{z} = 2a = \text{Real}$ (oi m)

(iii)

P	Q	$\neg P$	$P \rightarrow \neg P$	$P \rightarrow Q$	$(P \rightarrow \neg P) \vee (P \rightarrow Q)$
T	T	F	F	T	T
T	F	F	F	F	F
F	T	T	T	T	T
F	F	T	T	T	T

(a) m) (b) m)

(iv) Writing 16 elements of Power Set (2 m)

$$(v) \quad LHS = \begin{vmatrix} 6 & 7 & 8 \\ 3 & 4 & 5 \\ 2 & 3 & 4 \end{vmatrix} = \begin{vmatrix} 6 & 1 & 1 \\ 3 & 1 & 1 \\ 2 & 1 & 1 \end{vmatrix} \begin{matrix} C_3 - C_2 \\ C_2 - C_1 \\ (o/m) \end{matrix}$$

(vi) $x+3=2$, $3y-4=2$ (oim)
 $x=-1$, $y=2$ (oim)

(vii) $\begin{bmatrix} 4 & 3 \\ 2 & 2 \end{bmatrix} A = \begin{bmatrix} 1 & -1 \\ 2 & 4 \end{bmatrix}$

$$BA = C, \quad B^{-1} = \frac{1}{2} \begin{pmatrix} 2 & -3 \\ -2 & 4 \end{pmatrix} (01m)$$

$$A = \begin{bmatrix} -2 & -7 \\ 3 & 9 \end{bmatrix} \quad (ol m)$$

سوال نمبر 2:

(viii) $|A| = 5$ (01 m)

$$A^{-1} = \begin{bmatrix} 1/5 & 1/5 \\ -2/5 & 3/5 \end{bmatrix} \quad (61 \text{ m})$$

$$\begin{aligned} (1^{\text{st}}) \quad & x(x+7) = (2x-1)(x+4) \\ \Rightarrow \quad & x^2 - 4 = 0 \quad (01 \text{ m}) \\ \Rightarrow \quad & x = \pm 2 \quad (01 \text{ m}) \end{aligned}$$

(X) Correct definition (02 m)

$$\begin{aligned} \text{(x i)} \quad x &= (1)^{1/3} \\ \Rightarrow x-1 &= 0 \quad \text{or} \quad x^2+x+1=0 \quad (o.l.m) \\ \Rightarrow x &= 1, \frac{-1 \pm i\sqrt{3}}{2} \quad (p.l.m) \end{aligned}$$

$$(X_{ij}) \quad \begin{aligned} x^3 + x^2 + x + 1 &= 0 \\ (x+1)(x^2+1) &= 0 \quad (61m) \\ x &= -1, \quad x = \pm i \quad (61m) \end{aligned}$$

Q No. 3

(i) Correct definition (02 m)

$$(ii) \frac{x^4}{1-x^4} = -1 + \frac{1}{1-x^4}$$

$$= -1 + \frac{1}{(1-x)(1+x)(1+x^2)} \quad (sim)$$

$$\frac{1}{(1-x)(1+x)(1+x^2)} = \frac{A}{1-x} + \frac{B}{1+x} + \frac{Cx+D}{1+x^2} \text{ (o.m.)}$$

ثانوی واعلیٰ ثانوی تعلیمی بورڈ، ملتان

مورخہ 25/11/25 مضمون: ریاضی پرچہ: Part I گروپ: Ist
جنرل ہدایات برائے مارکنگ Key (مارکنگ سکیم)

انٹرمیڈیٹ دوسرا سالانہ امتحان 2025

Q.No. 3 (iii)

- * Checking for proper or improper
- * Clearing the given eq. of fraction
- * Equating co-efficients
- * Finding values of constants

(iv) $a_n - a_{n-1} = n+1$, $a_4 = 14$

Putting $n=2 \Rightarrow a_2 - a_1 = 3$

$n=3 \Rightarrow a_3 - a_2 = 4$

$n=4 \Rightarrow a_4 - a_3 = 5$ (01 m)

Finding $a_3 = 9$, $a_2 = 5$, $a_1 = 2$

Req. Seq. 2, 5, 9, 14, 20, (01 m)

(v) Definition (01 m)

Example (01 m)

(vi) Correct explanation (02 m)

(vii) $a_n = 3n - 1$

Putting $n=1$, $a_1 = 2$

$n=2$ $a_2 = 5$ (01 m)

$n=3$ $a_3 = 8$

$n=4$ $a_4 = 11$ (01 m)

(viii) Correct statement (02 m)

(ix) Correct definition (01 m)

Example (01 m)

(x) Correct definition (02 m)

(xi) $\sqrt[4]{17} = (16 + 1)^{\frac{1}{4}}$

$= 2(1 + 0.0625)$ (01 m)

Applying binomial series and
Simplification

$= 2.31$ (Approx) (01 m)

(xii)

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

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

$$|x| < 1$$

(02 m)

Q.No. 4

(i) $75^\circ 6' 30''$

$= \left(\frac{9013}{120}\right)^\circ$ (01 m)

$= \frac{9013}{21600} \pi \text{ rad}$ (01 m)

(ii) $\theta = 65^\circ 20' = \frac{49\pi}{135}$ (01 m)

$l = r\theta = 20.5 \text{ mm}$ (01 m)

(iii)

$\text{C.A.S} = \tan \theta + \cot \theta$

$= \frac{\sin \theta}{\cos \theta} + \frac{\cos \theta}{\sin \theta} =$

$= \frac{\sin^2 \theta + \cos^2 \theta}{\sin \theta \cos \theta}$ (01 m)

$= \text{Cosec} \theta \cdot \sec \theta$ (01 m)

(iv)

Award full marks for correct
solution by any method

(v)

$\cos(\theta - 180^\circ) = \cos \theta \cos 180^\circ + \sin \theta \sin 180^\circ$ (01 m)

$= \cos \theta (-1) + \sin \theta \cdot 0$

$= -\cos \theta$ (01 m)

(vi)

$\sin(\alpha + \beta) = \sin \alpha \cos \beta + \cos \alpha \sin \beta$

$\sin(\alpha - \beta) = \sin \alpha \cos \beta - \cos \alpha \sin \beta$ (01 m)

Adding and proving

$= 2 \sin \alpha \cos \beta$ (01 m)

ثانوی واعلیٰ ثانوی تعلیمی بورڈ، ملتان

تاریخ: 25/11/25 مضمون: ریاضی پرچہ: Part I گروپ: Ist
جزل ہدایات برائے مارکنگ Key (مارکنگ اسکیم)

انٹرمیڈیٹ دوسرا سالانہ امتحان 2025

Q No. 4 (vii)

$$\cot \frac{x}{2} = \cot \left(\frac{x}{2} + \pi \right) \quad (01m)$$

$$= \cot \frac{1}{2} (x + 2\pi)$$

Period of $\cot \frac{x}{2}$ is 2π (01m)

(viii)

$$a^2 = b^2 + c^2 - 2bc \cos x \quad (01m)$$

$$= 9 + 25 - 2(3 \times 5) \cos 120^\circ$$

$$a = 7 \quad (01m)$$

(ix) 01 mark for each law of cosine

(X) correct definition (02m)

$$Q No. 4 (xi) \Delta = \frac{1}{2} ab \sin x \quad (01m)$$

$$\Delta = \frac{1}{2} (200)(120) \sin 150^\circ$$

$$= 6000 \text{ sq unit} \quad (01m)$$

$$(xii) \cos^{-1} \left(-\frac{1}{2} \right) = y$$

$$\cos y = -\frac{1}{2} \quad 0 \leq y \leq \pi \quad (01m)$$

$$\cos^{-1} \left(-\frac{1}{2} \right) = -\frac{2\pi}{3} \quad (01m)$$

$$(xiii) \sin x = -\frac{\sqrt{3}}{2}$$

$\sin x$ is -ve in III & IV Quad

$$\text{ref angle} = \frac{\pi}{3} \quad (01m)$$

$$x = \frac{4\pi}{3}, \frac{5\pi}{3} \quad (01m)$$

Q No. 5 (a)

$$\begin{vmatrix} 3 & 4 & 2 & 7 \\ 2 & 5 & 0 & 3 \\ 1 & 2 & -3 & 5 \\ 4 & 1 & -2 & 6 \end{vmatrix}$$

$$= \begin{vmatrix} 3 & -2 & 11 & -8 \\ 2 & 1 & 6 & -7 \\ 1 & 0 & 0 & 0 \\ 4 & -7 & 10 & -14 \end{vmatrix}$$

$$\begin{aligned} & \text{by } C_2 - 2C_1 \\ & C_3 + 3C_1 \\ & C_4 - 5C_1 \end{aligned}$$

(02m)

$$= 1 \begin{vmatrix} -2 & 11 & -8 \\ 1 & 6 & -7 \\ -7 & 10 & -14 \end{vmatrix}$$

(01m)

$$= 305 \text{ Ans} \quad (02m)$$

OR full credit for any

other correct method.

Q No. 5 (b)

$$x^2 + (mx+c)^2 = a^2$$

$$\Rightarrow (1+m^2)x^2 + 2mcx + c^2 - a^2 = 0 \quad (01m)$$

$$\text{Disc} = (2mc)^2 - 4(1+m^2)(c^2 - a^2) \quad (01m)$$

$$= 4[-c^2 + m^2a^2 + a^2] \quad (01m)$$

$$= 4[-a^2(1+m^2) + a^2m^2 + a^2]$$

$$= 0$$

So roots are equal

(01m)

Q No. 6 (a)

$$\frac{x^4}{1-x^4} = -1 + \frac{1}{(1-x)(1+x)(1+x^2)}$$

$$\text{Let } \frac{1}{(1-x)(1+x)(1+x^2)} = \frac{A}{1-x} + \frac{B}{1+x} + \frac{Cx+D}{1+x^2}$$

(01m)

$$\Rightarrow A = \frac{1}{4}, B = \frac{1}{4}, C=0, D=\frac{1}{2}$$

put in (x)

(4m)

Adnan

ثانوی واعلیٰ ثانوی تعلیمی بورڈ، ملتان

مورخہ: 25/11/25 مشمول: 1 باب 1 پرچہ: Part I گروپ: Ist

جنرل ہدایات برائے مارکنگ Key (مارکنگ سکیم)

انٹرمیڈیٹ دوسرا سالانہ امتحان 2025

Q No 6(b)

$$1 \times 4 + 2 \times 7 + 3 \times 10 + \dots$$

$$T_n = n(3n+1) \\ = 3n^2 + n \quad (0.2M)$$

$$\Sigma T_n = 3 \Sigma n^2 + \Sigma n \\ = 3 \left(\frac{n(n+1)(2n+1)}{6} \right) + \frac{n(n+1)}{2} \quad (0.1M) \\ = n(n+1)^2 \text{ Ans.} \quad (0.2M)$$

Q No 7(d)

$$\text{Total No. of perm.} = {}^8P_8 = 40320 \quad (1M)$$

$$\text{If } E_1 E_2 \text{ is one then } {}^7P_7 = 5040 \quad (1M)$$

$$\text{If } E_2 E_1 \text{ is one Then } {}^7P_7 = 5040 \quad (1M)$$

$$\text{When } E_1, E_2 \text{ are together} = 5040 + 5040 \\ = 10080 \quad (1M)$$

$$\text{When never together} = 40320 - 10080 \\ = 30240 \text{ Ans} \quad (1M)$$

Q No. 7(b)

$$\frac{1}{3} + \frac{1}{3^2} + \frac{1}{3^3} + \dots + \frac{1}{3^n} = \frac{1}{2} \left[1 - \frac{1}{3^n} \right]$$

$$\text{For } n=1, \text{ L.H.S.} = \frac{1}{3}$$

$$\text{R.H.S.} = \frac{1}{2} \left[1 - \frac{1}{3^1} \right] = \frac{1}{2} \left[\frac{2}{3} \right] = \frac{1}{3}$$

$$\Rightarrow \text{L.H.S.} = \text{R.H.S.} \text{ So true for } n=1 \quad (1M)$$

Suppose for $n=k$ i.e.

$$\frac{1}{3} + \frac{1}{3^2} + \dots + \frac{1}{3^k} = \frac{1}{2} \left[1 - \frac{1}{3^k} \right] \quad (1M)$$

For $n=k+1$ i.e.

$$\frac{1}{3} + \frac{1}{3^2} + \dots + \frac{1}{3^k} + \frac{1}{3^{k+1}} = \frac{1}{2} \left[1 - \frac{1}{3^{k+1}} \right]$$

$$\text{L.H.S.} = \frac{1}{3} + \frac{1}{3^2} + \dots + \frac{1}{3^k} + \frac{1}{3^{k+1}}$$

$$\text{L.H.S.} = \frac{1}{2} \left[1 - \frac{1}{3^k} \right] + \frac{1}{3^{k+1}}$$

$$= \frac{1}{2} - \frac{1}{2 \cdot 3^k} + \frac{1}{3 \cdot 3^k}$$

$$= \frac{1}{2} + \frac{1}{3^k} \left[\frac{1}{3} - \frac{1}{2} \right]$$

$$= \frac{1}{2} + \frac{1}{3^k} \left[\frac{-1}{6} \right]$$

$$= \frac{1}{2} - \frac{1}{2 \times 3 \times 3^k}$$

$$= \frac{1}{2} - \frac{1}{2 \cdot 3^{k+1}}$$

$$= \frac{1}{2} \left[1 - \frac{1}{3^{k+1}} \right]$$

$$= \text{R.H.S.} \text{ So is}$$

True for all +ve integers.

(0.3M)

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Q No. 8 (a)

$$\frac{\tan \theta + \sec \theta - 1}{\tan \theta - \sec \theta + 1}$$

$$= \frac{\tan \theta + \sec \theta - (\sec^2 \theta - \tan^2 \theta)}{\tan \theta - \sec \theta + 1} \quad (01m)$$

$$= \frac{\tan \theta + \sec \theta - (\sec \theta + \tan \theta)(\sec \theta - \tan \theta)}{\tan \theta - \sec \theta + 1} \quad (01m)$$

$$= \frac{(\tan \theta + \sec \theta)[1 - \sec \theta + \tan \theta]}{\tan \theta - \sec \theta + 1} \quad (02m)$$

$$= \tan \theta + \sec \theta \quad (01m)$$

$$= R.H.S$$

Q No. 8 (b)

$$\sin\left(\frac{\pi}{4}\right) \cdot \sin\left(\frac{3\pi}{4}\right) \sin\left(\frac{3\pi}{4}\right) \sin\left(\frac{4\pi}{4}\right)$$

$$= \sin(20^\circ) \sin(40^\circ) \left[\frac{\sqrt{3}}{2}\right] \sin(80^\circ) \quad (1m)$$

$$= \frac{\sqrt{3}}{2} \sin(80^\circ) \left(\frac{1}{-2}\right) [-2 \sin(40^\circ) \sin(20^\circ)]$$

$$= -\frac{\sqrt{3}}{4} \sin(80^\circ) [\cos(60^\circ) - \cos(20^\circ)] \quad (1m)$$

$$= -\frac{\sqrt{3}}{4} \sin(80^\circ) \left[\frac{1}{2} - \cos(20^\circ)\right]$$

$$= -\frac{\sqrt{3}}{8} \sin(80^\circ) + \frac{\sqrt{3}}{4} \left[2 \sin(80^\circ) \cos(20^\circ)\right]$$

$$= -\frac{\sqrt{3}}{8} \sin(80^\circ) + \frac{\sqrt{3}}{8} [\sin(100^\circ) + \sin(60^\circ)] \quad (1m)$$

$$= -\frac{\sqrt{3}}{8} \sin(80^\circ) + \frac{\sqrt{3}}{8} \sin(100^\circ) + \frac{\sqrt{3}}{8} \left(\frac{\sqrt{3}}{2}\right)$$

$$= \frac{\sqrt{3}}{8} [\sin(100^\circ) - \sin(80^\circ)] + \frac{3}{16}$$

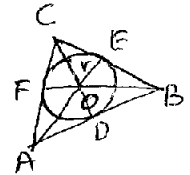
$$= \frac{\sqrt{3}}{8} [2 \cos(90^\circ) \sin(10^\circ)] + \frac{3}{16}$$

$$= 0 + \frac{3}{16}$$

$$= \frac{3}{16} = R.H.S \quad (02m)$$

Q No. 9 (a)

$$|AB| = c, |BC| = a, |AC| = b$$



$$\text{Area of } \triangle ABC = \text{Area of } \triangle AOB + \text{Area of } \triangle BOC + \text{Area of } \triangle AOC$$

$$\Delta = \frac{1}{2} |AB| |OD| + \frac{1}{2} |BC| |OE| + \frac{1}{2} |AC| |OF| \quad (1m)$$

$$\Delta = \frac{1}{2} cr + \frac{1}{2} ar + \frac{1}{2} br \quad (02m)$$

$$= \frac{1}{2} r [a+b+c]$$

$$= \frac{1}{2} r [2s]$$

$$\Delta = rs$$

$$\Rightarrow \boxed{r = \frac{\Delta}{s}} \quad (02m)$$

Q No. 9 (b)

$$\tan^{-1}\left(\frac{120}{119}\right) = 2 \cos^{-1}\left(\frac{12}{13}\right)$$

$$\text{let } \theta = \cos^{-1}\left(\frac{12}{13}\right)$$

$$\Rightarrow \cos(\theta) = \frac{12}{13} \quad ; \theta \in [0, \pi]$$

$$\Rightarrow \sin(\theta) = \frac{5}{13} \quad (1m)$$

$$\Rightarrow \tan \theta = \frac{5}{12} \quad (1m)$$

$$\text{So } \tan(2\theta) = \frac{2 \tan \theta}{1 - \tan^2 \theta}$$

$$= \frac{2 \left(\frac{5}{12}\right)}{1 - \left(\frac{5}{12}\right)^2}$$

$$\tan(2\theta) = \frac{120}{119} \quad (02m)$$

$$2\theta = \tan^{-1}\left(\frac{120}{119}\right)$$

$$\Rightarrow 2 \cos^{-1}\left(\frac{12}{13}\right) = \tan^{-1}\left(\frac{120}{119}\right) \quad (01m)$$

proved

INTERMEDIATE PART-I (11 th Class)		2025 (2 nd -A)	Roll No: _____
MATHEMATICS PAPER-I GROUP-I			
TIME ALLOWED: 2.30 Hours		SUBJECTIVE	MAXIMUM MARKS: 80
NOTE: Write same question number and its parts number on answer book, as given in the question paper.			
SECTION-I			
2. Attempt any eight parts.			8 × 2 = 16
(i)	Prove the rule of addition $\frac{a}{c} + \frac{b}{c} = \frac{a+b}{c}$	(ii)	Prove that the sum of any two conjugate complex numbers is a real number.
(iii)	Construct the truth table of $(p \rightarrow \sim p) \vee (p \rightarrow q)$	(iv)	Write down the power of set of $\{+, -, \times, \div\}$
(v)	Without expansion show that $\begin{vmatrix} 6 & 7 & 8 \\ 3 & 4 & 5 \\ 2 & 3 & 4 \end{vmatrix} = 0$	(vi)	Find x and y if $\begin{bmatrix} x+3 & 1 \\ -3 & 3y-4 \end{bmatrix} = \begin{bmatrix} 2 & 1 \\ -3 & 2 \end{bmatrix}$
(vii)	Solve the matrix equation for A, $\begin{bmatrix} 4 & 3 \\ 2 & 2 \end{bmatrix} A - \begin{bmatrix} 2 & 3 \\ -1 & -2 \end{bmatrix} = \begin{bmatrix} -1 & -4 \\ 3 & 6 \end{bmatrix}$		
(viii)	Find the inverse of matrix $\begin{bmatrix} 3 & -1 \\ 2 & 1 \end{bmatrix}$	(ix)	Solve $x(x+7) = (2x-1)(x+4)$ by factorization.
(x)	Define exponential equations.	(xi)	Find three cube roots of unity.
(xii)	Solve the equation $x^3 + x^2 + x + 1 = 0$		
3. Attempt any eight parts.			8 × 2 = 16
(i)	Define rational fraction.	(ii)	Resolve into partial fraction for $\frac{x^4}{1-x^4}$ without finding unknown constants.
(iii)	Give the main points for resolving a rational fraction into partial fraction.		
(iv)	Find the sequence of $a_n - a_{n-1} = n+1$ and $a_1 = 14$	(v)	Define series with an example.
(vi)	What do you mean for a sequence and real sequence?	(vii)	The n^{th} term of the A.P. is $3n-1$, find the A.P.
(viii)	Give the fundamental principle of counting	(ix)	Define permutation with the help of an example.
(x)	What do you mean for sample space?	(xi)	Using Binomial theorem, find the value of $\sqrt[4]{17}$ to three decimal places.
(xii)	Write down the general form of the binomial series.		
4. Attempt any nine parts.			9 × 2 = 18
(i)	Convert in radian of $75^\circ 6' 30''$	(ii)	Find ℓ if $\theta = 65^\circ 20'$ and $r = 18mm$
(iii)	Prove that $\tan \theta + \cot \theta = \operatorname{cosec} \theta \sec \theta$	(iv)	Prove that $\sin\left(\frac{\pi}{2} + \alpha\right) = \cos \alpha$
(v)	Show that $\cos(\theta - 180^\circ) = -\cos \theta$	(vi)	Show that $2 \sin \alpha \cos \beta = \sin(\alpha + \beta) + \sin(\alpha - \beta)$
(vii)	Find the period of $\cot \frac{x}{2}$	(viii)	Let in a triangle ABC, $b = 3, c = 5$ and $\alpha = 120^\circ$ find a
(ix)	State any two law of cosine.	(x)	Define inscribed circle.
(xi)	Find the area of triangle ABC in which $a = 200, b = 120, \gamma = 150^\circ$	(xii)	Find the value of $\cos^{-1}\left(-\frac{1}{2}\right)$
(xiii)	Find the solution of equation which lies in $[0, 2\pi]$ of $\sin x + \frac{\sqrt{3}}{2} = 0$		
SECTION-II			
NOTE: Attempt any three questions.			3 × 10 = 30
5.(a)	Evaluate $\begin{vmatrix} 3 & 4 & 2 & 7 \\ 2 & 5 & 0 & 3 \\ 1 & 2 & -3 & 5 \\ 4 & 1 & -2 & 6 \end{vmatrix}$		
(b)	Show that the roots of $x^2 + (mx+c)^2 = a^2$ will be equal if $c^2 = a^2(1+m^2)$		
6.(a)	Resolve $\frac{x^4}{1-x^4}$ into partial fractions.	(b)	Sum the series upto n terms. $1 \times 4 + 2 \times 7 + 3 \times 10 + \dots$
7.(a)	In how many ways can 8 books including 2 on English be arranged on a shelf in such a way that the English books are never together.		
(b)	Use mathematical Induction to prove $\frac{1}{3} + \frac{1}{3^2} + \dots + \frac{1}{3^n} = \frac{1}{2} \left[1 - \frac{1}{3^n} \right]$ $\forall n \in \mathbb{Z}^+$		
8.(a)	Prove that, $\frac{\tan \theta + \sec \theta - 1}{\tan \theta - \sec \theta + 1} = \tan \theta + \sec \theta$		
(b)	Prove that, $\sin \frac{\pi}{9} \sin \frac{2\pi}{9} \sin \frac{\pi}{3} \sin \frac{4\pi}{9} = \frac{3}{16}$		
9.(a)	Define In-Circle and prove that $r = \frac{\Delta}{s}$		
(b)	Prove that $\tan^{-1} \frac{120}{119} = 2 \cos^{-1} \frac{12}{13}$		

Paper Code Number: 2191		2025 (2 nd -A) INTERMEDIATE PART-I (11 th Class)		Roll No: _____		
MATHEMATICS PAPER-I GROUP-I						
TIME ALLOWED: 30 Minutes			OBJECTIVE		MAXIMUM MARKS: 20	
Q.No.1	You have four choices for each objective type question as A, B, C and D. The choice which you think is correct, fill that bubble in front of that question number, on bubble sheet. Use marker or pen to fill the bubbles. Cutting or filling two or more bubbles will result in zero mark in that question.					
S.#	QUESTIONS		A	B	C	D
1	$\left \frac{1}{2} + \frac{\sqrt{3}}{2}i \right = \underline{\hspace{1cm}}$		$\frac{1}{2}$	2	1	$\frac{3}{4}$
2	If $Z = \sqrt{4} + \sqrt{5}i$, then real part of Z^{-1} equals:		$\frac{\sqrt{4}}{9}$	$-\frac{\sqrt{4}}{9}$	$\frac{\sqrt{5}}{9}$	$-\frac{\sqrt{5}}{9}$
3	If $A \subseteq B$, then $A \cup B = \underline{\hspace{1cm}}$.		A	B	A^c	B^c
4	If A is a square matrix of order 3×3 , then $ kA $ is equal to:		$k^3 A $	$k^2 A $	$k A ^2$	$k A $
5	If $A = \begin{bmatrix} x & 1 \\ 1 & 1 \end{bmatrix}$ and $\frac{1}{ A } = 7$, then $x = \underline{\hspace{1cm}}$.		$\frac{7}{8}$	$-\frac{7}{8}$	7	$\frac{8}{7}$
6	If one root of $x^2 - 3x + a = 0$ is 2, then $a = \underline{\hspace{1cm}}$.		-2	0	2	-3
7	Product of all the fourth roots of unity is:		-1	-i	0	1
8	Conditional equation $3x - 1 = 0$ is true only if:		$-\frac{1}{3}$	3	-3	$\frac{1}{3}$
9	If $a_{n-3} = 3n - 1$ i. then n^{th} term is:		$3n + 2$	$3n - 2$	$3n - 3$	$3n + 3$
10	A.M. between $x - 3$ and $x + 5$ is:		$x + 1$	$x - 1$	$2x - 2$	$2x + 2$
11	${}^{n-1}C_r + {}^{n-1}C_{r-1} = \underline{\hspace{1cm}}$.		${}^{n-1}C_r$	${}^{n-1}C_{r-1}$	${}^nC_{r-1}$	nC_r
12	$1 \cdot \binom{n}{1} + 2 \cdot \binom{n}{2} + 3 \cdot \binom{n}{3} + \dots + n \cdot \binom{n}{n} = \underline{\hspace{1cm}}$		2^n	2^{n-1}	$n \cdot 2^{n-1}$	$n \cdot 2^{n+1}$
13	$\sin 420^\circ = \underline{\hspace{1cm}}$.		$\frac{2}{\sqrt{3}}$	$\frac{\sqrt{3}}{2}$	$\frac{-\sqrt{3}}{2}$	$\frac{3}{\sqrt{2}}$
14	$\tan(\alpha + 90^\circ) = \underline{\hspace{1cm}}$.		$-\cot \alpha$	$\cot \alpha$	$\tan \alpha$	$-\tan \alpha$
15	$\frac{\pi}{2} + \theta$ lies in quadrant:		I	III	II	IV
16	Period of $2\sin(\pi - x)$ is:		2π	π	3π	4π
17	$S(S-a)(S-b)(S-c) = \underline{\hspace{1cm}}$:		Δ	Δ^3	ΔS	Δ^2
18	$S \tan \frac{\beta}{2} = \underline{\hspace{1cm}}$.		r_1	r_2	r_3	r
19	$\sec \left[\cos^{-1} \left(\frac{1}{2} \right) \right] = \underline{\hspace{1cm}}$.		$\sqrt{2}$	$\frac{\sqrt{3}}{2}$	$\frac{1}{2}$	2
20	If $\tan x = -1$, then reference angle is:		$-\frac{\pi}{3}$	$\frac{\pi}{3}$	$\frac{\pi}{4}$	$-\frac{\pi}{4}$

Paper Code Number: 2193		2025 (2 nd -A) INTERMEDIATE PART-I (11 th Class)		Roll No: _____	
MATHEMATICS PAPER-I GROUP-I					
TIME ALLOWED: 30 Minutes		OBJECTIVE		MAXIMUM MARKS: 20	
Q.No.1	You have four choices for each objective type question as A, B, C and D. The choice which you think is correct, fill that bubble in front of that question number, on bubble sheet. Use marker or pen to fill the bubbles. Cutting or filling two or more bubbles will result in zero mark in that question.				
S.#	QUESTIONS	A	B	C	D
1	A.M. between $x-3$ and $x+5$ is:	$x+1$	$x-1$	$2x-2$	$2x+2$
2	${}^{n-1}C_r + {}^{n-1}C_{r-1} = \underline{\hspace{1cm}}$.	${}^{n-1}C_r$	${}^{n-1}C_{r-1}$	${}^nC_{r-1}$	nC_r
3	$1 \cdot \binom{n}{1} + 2 \cdot \binom{n}{2} + 3 \cdot \binom{n}{3} + \dots + n \cdot \binom{n}{n} = \underline{\hspace{1cm}}$.	2^n	2^{n-1}	$n \cdot 2^{n-1}$	$n \cdot 2^{n+1}$
4	$\sin 420^\circ = \underline{\hspace{1cm}}$.	$\frac{2}{\sqrt{3}}$	$\frac{\sqrt{3}}{2}$	$\frac{-\sqrt{3}}{2}$	$\frac{3}{\sqrt{2}}$
5	$\tan(\alpha + 90^\circ) = \underline{\hspace{1cm}}$.	$-\cot \alpha$	$\cot \alpha$	$\tan \alpha$	$-\tan \alpha$
6	$\frac{\pi}{2} + \theta$ lies in quadrant:	I	III	II	IV
7	Period of $2\sin(\pi - x)$ is:	2π	π	3π	4π
8	$S(S-a)(S-b)(S-c) = :$	Δ	Δ^3	ΔS	Δ^2
9	$S \tan \frac{\beta}{2} = \underline{\hspace{1cm}}$.	r_1	r_2	r_3	r
10	$\sec \left[\cos^{-1} \left(\frac{1}{2} \right) \right] = \underline{\hspace{1cm}}$.	$\sqrt{2}$	$\frac{\sqrt{3}}{2}$	$\frac{1}{2}$	2
11	If $\tan x = -1$, then reference angle is:	$\frac{-\pi}{3}$	$\frac{\pi}{3}$	$\frac{\pi}{4}$	$\frac{-\pi}{4}$
12	$\left \frac{1}{2} + \frac{\sqrt{3}}{2}i \right = \underline{\hspace{1cm}}$.	$\frac{1}{2}$	2	1	$\frac{3}{4}$
13	If $Z = \sqrt{4} + \sqrt{5}i$, then real part of Z^{-1} equals:	$\frac{\sqrt{4}}{9}$	$-\frac{\sqrt{4}}{9}$	$\frac{\sqrt{5}}{9}$	$-\frac{\sqrt{5}}{9}$
14	If $A \subseteq B$, then $A \cup B = \underline{\hspace{1cm}}$.	A	B	A^c	B^c
15	If A is a square matrix of order 3×3 , then $ kA $ is equal to:	$k^3 A $	$k^2 A $	$k A ^2$	$k A $
16	If $A = \begin{bmatrix} x & 1 \\ 1 & 1 \end{bmatrix}$ and $\frac{1}{ A } = 7$, then $x = \underline{\hspace{1cm}}$.	$\frac{7}{8}$	$-\frac{7}{8}$	7	$\frac{8}{7}$
17	If one root of $x^2 - 3x + a = 0$ is 2, then $a = \underline{\hspace{1cm}}$.	-2	0	2	-3
18	Product of all the fourth roots of unity is:	-1	-i	0	1
19	Conditional equation $3x - 1 = 0$ is true only if:	$-\frac{1}{3}$	3	-3	$\frac{1}{3}$
20	If $a_{n-3} = 3n - 11$, then n^{th} term is:	$3n + 2$	$3n - 2$	$3n - 3$	$3n + 3$

Paper Code Number: 2195		2025 (2 nd -A) INTERMEDIATE PART-I (11 th Class)		Roll No: _____	
MATHEMATICS PAPER-I GROUP-I					
TIME ALLOWED: 30 Minutes		OBJECTIVE		MAXIMUM MARKS: 20	
Q.No.1	You have four choices for each objective type question as A, B, C and D. The choice which you think is correct, fill that bubble in front of that question number, on bubble sheet. Use marker or pen to fill the bubbles. Cutting or filling two or more bubbles will result in zero mark in that question.				
S.#	QUESTIONS	A	B	C	D
1	Period of $2\sin(\pi - x)$ is:	2π	π	3π	4π
2	$S(S-a)(S-b)(S-c) = :$	Δ	Δ^3	ΔS	Δ^2
3	$S \tan \frac{\beta}{2} = \underline{\hspace{1cm}}$.	r_1	r_2	r_3	r
4	$\sec \left[\cos^{-1} \left(\frac{1}{2} \right) \right] = \underline{\hspace{1cm}}$.	$\sqrt{2}$	$\frac{\sqrt{3}}{2}$	$\frac{1}{2}$	2
5	If $\tan x = -1$, then reference angle is:	$\frac{-\pi}{3}$	$\frac{\pi}{3}$	$\frac{\pi}{4}$	$\frac{-\pi}{4}$
6	$\left \frac{1}{2} + \frac{\sqrt{3}}{2}i \right = \underline{\hspace{1cm}}$.	$\frac{1}{2}$	2	1	$\frac{3}{4}$
7	If $Z = \sqrt{4} + \sqrt{5}i$, then real part of Z^{-1} equals:	$\frac{\sqrt{4}}{9}$	$-\frac{\sqrt{4}}{9}$	$\frac{\sqrt{5}}{9}$	$-\frac{\sqrt{5}}{9}$
8	If $A \subseteq B$, then $A \cup B = \underline{\hspace{1cm}}$.	A	B	A^c	B^c
9	If A is a square matrix of order 3×3 , then $ kA $ is equal to:	$k^3 A $	$k^2 A $	$k A ^2$	$k A $
10	If $A = \begin{bmatrix} x & 1 \\ 1 & 1 \end{bmatrix}$ and $\frac{1}{ A } = 7$, then $x = \underline{\hspace{1cm}}$.	$\frac{7}{8}$	$-\frac{7}{8}$	7	$\frac{8}{7}$
11	If one root of $x^2 - 3x + a = 0$ is 2, then $a = \underline{\hspace{1cm}}$.	-2	0	2	-3
12	Product of all the fourth roots of unity is:	-1	$-i$	0	1
13	Conditional equation $3x - 1 = 0$ is true only if:	$-\frac{1}{3}$	3	-3	$\frac{1}{3}$
14	If $a_{n-3} = 3n - 11$, then n^{th} term is:	$3n + 2$	$3n - 2$	$3n - 3$	$3n + 3$
15	A.M. between $x - 3$ and $x + 5$ is:	$x + 1$	$x - 1$	$2x - 2$	$2x + 2$
16	${}^{n-1}C_r + {}^{n-1}C_{r-1} = \underline{\hspace{1cm}}$.	${}^{n-1}C_r$	${}^{n-1}C_{r-1}$	${}^nC_{r-1}$	nC_r
17	$1 \cdot \binom{n}{1} + 2 \cdot \binom{n}{2} + 3 \cdot \binom{n}{3} + \dots + n \cdot \binom{n}{n} = \underline{\hspace{1cm}}$.	2^n	2^{n-1}	$n \cdot 2^{n-1}$	$n \cdot 2^{n+1}$
18	$\sin 420^\circ = \underline{\hspace{1cm}}$.	$\frac{2}{\sqrt{3}}$	$\frac{\sqrt{3}}{2}$	$\frac{-\sqrt{3}}{2}$	$\frac{3}{\sqrt{2}}$
19	$\tan(\alpha + 90^\circ) = \underline{\hspace{1cm}}$.	$-\cot \alpha$	$\cot \alpha$	$\tan \alpha$	$-\tan \alpha$
20	$\frac{\pi}{2} + \theta$ lies in quadrant:	I	III	II	IV

Paper Code Number: 2197		2025 (2 nd -A) INTERMEDIATE PART-I (11 th Class)		Roll No:	
MATHEMATICS PAPER-I GROUP-I					
TIME ALLOWED: 30 Minutes		OBJECTIVE		MAXIMUM MARKS: 20	
Q.No.1	You have four choices for each objective type question as A, B, C and D. The choice which you think is correct, fill that bubble in front of that question number, on bubble sheet. Use marker or pen to fill the bubbles. Cutting or filling two or more bubbles will result in zero mark in that question.				
S.#	QUESTIONS	A	B	C	D
1	If one root of $x^2 - 3x + a = 0$ is 2, then $a =$ ____.	-2	0	2	-3
2	Product of all the fourth roots of unity is:	-1	-i	0	1
3	Conditional equation $3x - 1 = 0$ is true only if:	$-\frac{1}{3}$	3	-3	$\frac{1}{3}$
4	If $a_{n-3} = 3n - 1$, then n^{th} term is:	$3n + 2$	$3n - 2$	$3n - 3$	$3n + 3$
5	A.M. between $x - 3$ and $x + 5$ is:	$x + 1$	$x - 1$	$2x - 2$	$2x + 2$
6	${}^{n-1}C_r + {}^{n-1}C_{r-1} =$ ____.	${}^{n-1}C_r$	${}^{n-1}C_{r-1}$	${}^nC_{r-1}$	nC_r
7	$1 \cdot \binom{n}{1} + 2 \cdot \binom{n}{2} + 3 \cdot \binom{n}{3} + \dots + n \cdot \binom{n}{n} =$ ____	2^n	2^{n-1}	$n \cdot 2^{n-1}$	$n \cdot 2^{n+1}$
8	$\sin 420^\circ =$ ____.	$\frac{2}{\sqrt{3}}$	$\frac{\sqrt{3}}{2}$	$\frac{-\sqrt{3}}{2}$	$\frac{3}{\sqrt{2}}$
9	$\tan(\alpha + 90^\circ) =$ ____.	$-\cot \alpha$	$\cot \alpha$	$\tan \alpha$	$-\tan \alpha$
10	$\frac{\pi}{2} + \theta$ lies in quadrant:	I	III	II	IV
11	Period of $2\sin(\pi - x)$ is:	2π	π	3π	4π
12	$S(S - a)(S - b)(S - c) =$:	Δ	Δ^3	ΔS	Δ^2
13	$S \tan \frac{\beta}{2} =$ ____.	r_1	r_2	r_3	r
14	$\sec \left[\cos^{-1} \left(\frac{1}{2} \right) \right] =$ ____.	$\sqrt{2}$	$\frac{\sqrt{3}}{2}$	$\frac{1}{2}$	2
15	If $\tan x = -1$, then reference angle is:	$-\frac{\pi}{3}$	$\frac{\pi}{3}$	$\frac{\pi}{4}$	$-\frac{\pi}{4}$
16	$\left \frac{1}{2} + \frac{\sqrt{3}}{2}i \right =$ ____.	$\frac{1}{2}$	2	1	$\frac{3}{4}$
17	If $Z = \sqrt{4} + \sqrt{5}i$, then real part of Z^{-1} equals:	$\frac{\sqrt{4}}{9}$	$-\frac{\sqrt{4}}{9}$	$\frac{\sqrt{5}}{9}$	$-\frac{\sqrt{5}}{9}$
18	If $A \subseteq B$, then $A \cup B =$ ____.	A	B	A^c	B^c
19	If A is a square matrix of order 3×3 , then $ kA $ is equal to:	$k^3 A $	$k^2 A $	$k A ^2$	$k A $
20	If $A = \begin{bmatrix} x & 1 \\ 1 & 1 \end{bmatrix}$ and $\frac{1}{ A } = 7$, then $x =$ ____.	$\frac{7}{8}$	$-\frac{7}{8}$	7	$\frac{8}{7}$

BOARD OF INTERMEDIATE AND SECONDARY EDUCATION, MULTAN.
OBJECTIVE KEY FOR INTERMEDIATE 2nd ANNUAL EXAMINATION, 2025.

Name of Subject: Mathematics (Part-I) Group: II

Q. Nos	Paper Code 2192	Correct Answer	Paper Code 2194	Correct Answer	Paper Code 2196	Correct Answer	Paper Code 2198	Correct Answer
1	F.C	F.C	A	nC_n	A	R	B	4
2	C	Irrational	C	Binomial	A	2	D	(3,2)
3	A	$b^{-1}a^{-1}$	B	-1	C	$\tan^{1/2}$	C	Identify
4	C	$\begin{bmatrix} 4 & -2 \\ -3 & 1 \end{bmatrix}$	D	$1/\sqrt{2}$	D	$\pi/3$	B	G^2
5	A	0	C	$2\sin\theta/2\cos\theta/2$	B	$2\pi/3$	D	$\frac{2ab}{a+b}$
6	B	4	A	R	F.C	F.C	A	nC_n
7	D	(3,2)	A	2	C	irrational	C	Binomial
8	C	Identify	C	$\tan^{1/2}$	A	$b^{-1}a^{-1}$	B	-1
9	B	G^2	D	$\pi/3$	C	$\begin{bmatrix} 4 & -2 \\ -3 & 1 \end{bmatrix}$	D	$1/\sqrt{2}$
10	D	$\frac{2ab}{a+b}$	B	$2\pi/3$	A	0	C	$2\sin\theta/2\cos\theta/2$
11	A	nC_n	F.C	F.C	B	4	A	R
12	C	binomial	C	irrational	D	(3,2)	A	2
13	B	-1	A	$b^{-1}a^{-1}$	C	Identify	C	$\tan^{1/2}$
14	D	$1/\sqrt{2}$	C	$\begin{bmatrix} 4 & -2 \\ -3 & 1 \end{bmatrix}$	B	G^2	D	$\pi/3$
15	C	$2\sin\theta/2\cos\theta/2$	A	0	D	$\frac{2ab}{a+b}$	B	$2\pi/3$
16	A	R	B	-4	A	nC_n	F.C	F.C
17	A	2	D	(3,2)	C	binomial	C	irrational
18	C	$\tan^{1/2}$	C	Identify	B	-1	A	$b^{-1}a^{-1}$
19	D	$\pi/3$	B	G^2	D	$1/\sqrt{2}$	C	$\begin{bmatrix} 4 & -2 \\ -3 & 1 \end{bmatrix}$
20	B	$2\pi/3$	D	$\frac{2ab}{a+b}$	C	$2\sin\theta/2\cos\theta/2$	A	0
Cross Check	A B C D		A B C D		A B C D		A B C D	
Total	5 4 6 4		5 4 6 4		5 4 6 4		5 4 6 4	

Fe=1

سرٹیفکیٹ بابت صحیح سوالیہ پرچہ مارکنگ Key

ہم نے مضمون Math پرچہ I گروپ Ist سالانہ امتحان 2024 کا

سوالیہ پرچہ انشائیہ و معروضی (Subjective & Objective) کو بنظر عین چیک کر لیا ہے یہ پرچہ Syllabus کے عین مطابق Set کیا گیا ہے۔ اس سوالیہ پرچہ میں کسی قسم کی کوئی غلطی نہ ہے۔ ہم نے سوالیہ پرچہ کا اردو اور انگریزی Version بھی چیک کر لیا ہے۔ یہ Version آپس میں مطابقت رکھتے ہیں۔ نیز اس پرچہ کی معروضی (MCQs) Key کی بابت تصدیق کی جاتی ہے کہ اس میں بھی کسی قسم کی کوئی غلطی نہ ہے۔ مزید یہ کہ ہم نے Key بنانے سے متعلق دفتر کی جانب سے تیار کردہ ہدایات وصول کر کے ان کا بغور مطالعہ کر لیا ہے اور ان کی روشنی میں Key بنائی ہے۔ نیز سب ایگزیمینرز کیلئے تفصیلی مارکنگ ہدایات / مارکنگ اسکیم / Rubrics بھی تیار کر دی گئی ہیں۔

Prepared & Checked By:

Dated:

S.#	Name	Designation	Institution	Mobile No	Signature
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3	M. Arif	A.P	G.G.C of Science Multan	0300-8682996	Arif
4	Khurram Shahzad	A.P	G.G.C Civil Lines Multan	0321-6343022	Khurram
5					

Re-Checked By ہم نے درج بالا سوالیہ پرچہ (انشائیہ + معروضی) معروضی "Key" اور ہدایات کے حوالہ سے مکمل طور پر تسمی کر لی ہے۔ کسی قسم کی کوئی غلطی نہ ہے۔

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تاریخ

ثانوی و اعلیٰ ثانوی تعلیمی بورڈ، ملتان

مورخہ: 25-11-2025 مضمون: Maths پرچہ: 11th Year گروپ: II

جنرل ہدایات برائے مارکنگ ہدایات (مارکنگ سکیم)

انٹرمیڈیٹ دوسرا سالانہ امتحان 2025

Sr #	Code	Error Indicated	Sr #	Code	Error Indicated
1.	UN	Un-Necessary	8.	SP	Spelling Error
2.	Ir	Irrelevant	9.	P	Punctuation
3.	IN	Incomplete	10.	Wo	Wrong word error
4.	EX	Extra	11.	Wt	Wrong Tense
5.	Rp	Re-Produced	12.	Wf	Wrong Form
6.	I	Insufficient	13.	OA	Over Attempt
7.	Gr	Grammar Error			

اہم نوٹ: ہر سوال "Full Award" سے کم نمبر لگانے کی صورت میں وجہ ضرور لکھیں۔

Key مارکنگ (Page No.1) اس صفحہ سے شروع کریں

Q.No. 2

(i) $(0, 3)(0, 5) = (3i)(5i)$ (01 m)
 $= (-15, 0)$ (01 m)

(ii) $9a^2 + 16b^2$
 $= (3a)^2 - (4bi)^2$ (01 m)
 $= (3a - 4bi)(3a + 4bi)$ (01 m)

(iii) $\{a, \{b, c\}\}$
 $= \{\phi, \{a\}, \{b, c\}, \{a, \{b, c\}\}\}$ (02 m)

(iv) For each correct definition (01+01)

(v) correct definition (01 m)
 Example (01 m)

(vi) $3x - 5y = 1$
 $-2x + y = -3$
 Using any Method
 $x = 2, y = 1$ (02 m)

(vii) $(A+B)^t = \begin{pmatrix} 3 & 1 \\ 2 & 5 \\ 2 & 0 \end{pmatrix}$ (01 m)

$A^t + B^t = \begin{pmatrix} 3 & 1 \\ 2 & 5 \\ 2 & 0 \end{pmatrix}$ (01 m)

سوال نمبر 2:

(viii) $|A| = 0$ (01 m)

Inverse does not exist (01 m)

(ix) $(-1 + \sqrt{-3})^5 + (-1 - \sqrt{-3})^5$
 $= (2\omega)^5 + (2\omega^2)^5$ (01 m)
 Simplification (01 m)
 $= -32$

(x) $x^3 + x^2 + x + 1 = 0$
 $\Rightarrow (x+1)(x^2+1) = 0$ (01 m)
 Simplification and finding

$x = -1, \pm i$ (01 m)

(xi) $f(x) = x^3 + kx^2 - 7x + 6$
 Here $a = -2$
 Remainder $= f(-2)$
 $= 4k + 12$ (01 m)

Finding $k = -4$ (01 m)

(xii) correct definition (02 m)

ثانوی واعلیٰ ثانوی تعلیمی بورڈ، ملتان

مورثہ 25/11/2025 مضمون: ریاضی I پرچہ: 1st Year گروپ: II
جزل ہدایات برائے مارکنگ Key (مارکنگ سکیم)

انٹرمیڈیٹ دوسرا سالانہ امتحان 2025ء

Q.No. 3

(i) Correct definitions and explanations (02 m)

(ii) $\frac{1}{x^2-1} = \frac{1}{(x-1)(x+1)}$
 $= \frac{A}{x-1} + \frac{B}{x+1}$ (01 m)
 Simplification and finding
 $A = \frac{1}{2}, B = -\frac{1}{2}$
 $= \frac{\frac{1}{2}}{x-1} + \frac{-\frac{1}{2}}{x+1}$ (01 m)

(iii) correct definition (02 m)

(iv) $a_1 = -7, d = 2, S_n = 65$
 $S_n = \frac{n}{2} [2a_1 + (n-1)d]$ (01 m)
 Putting values and simplification
 $n = -5$ (Not possible)
 $n = 13$ ans (01 m)

(v) $a_1 = 3, r = 2, n = 5$
 $a_n = a_1 r^{n-1}$ (01 m)
 $a_5 = 48$ (01 m)

(vi) 1, $G_1, G_2, G_3, 16$ are in G.P

$r = \pm 2i, r = \pm 2$ (01 m)

For $r = 2$
 $G_1 = 2, G_2 = 4, G_3 = 8$

For $r = -2$
 $G_1 = -2, G_2 = 4, G_3 = -8$

For $r = 2i$
 $G_1 = 2i, G_2 = -4, G_3 = -8i$

For $r = -2i$
 $G_1 = -2i, G_2 = -4, G_3 = 8i$
 (01 m)

(vii) correct definition (02 m)

(viii) $P(E) = 0$ (02 m)

(ix) Define impossible event (01 m)

Define certain even (01 m)

(x) ${}^{20}C_{17}$
 $= \frac{20!}{17! (20-17)!}$ (01 m)
 $= 1140$ (01 m)

(xi) $n! > 2^n - 1$
 Prove for $n=4, 24 > 15$
 Suppose true for $n=k$
 $k! > 2^k - 1$ (01 m)

Proof of $(k+1)! > 2^{k+1} - 1$ (01 m)

(xii) $(x^2 + x - 1)^3$
 $= [x^2 + (x-1)]^3$
 Applying binomial Theorem (01 m)

Simplification
 $= x^6 + 3x^5 - 5x^3 + 3x - 1$
 (01 m)

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سورخہ 25/11/24 مضمون: (16) پرچہ: 13+year گروپ: 11
جنرل ہدایات برائے مارکنگ Key (مارکنگ سکیم)
انٹرمیڈیٹ دوسرا سالانہ امتحان 2025

Q:4 (i)

Full Marks For correct definition (2M)

(ii)

$$\theta = \frac{l}{r} = \frac{1.5}{2.5} (1M)$$

$$\theta = 0.6 \text{ rad} (1M)$$

(iii)

$$\tan^2 45^\circ - \cos^2 60^\circ = x \sin 45^\circ \cos 45^\circ \tan 60^\circ$$

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

$$\frac{3}{4} = \frac{\sqrt{3}x}{2}$$

$$x = \frac{\sqrt{3}}{2} (1M)$$

(iv) let α and β be two angles

$$\cos(\alpha - \beta) = \cos \alpha \cos \beta + \sin \alpha \sin \beta (2M)$$

(v)

$$\alpha + \beta + \gamma = 180^\circ$$

$$\alpha + \beta = 180^\circ - \gamma (1M)$$

$$\tan(\alpha + \beta) = \tan(180^\circ - \gamma)$$

$$\tan(\alpha + \beta) + \tan \gamma = 0 (1M)$$

(vi)

$$\frac{\cos \alpha}{\sin \alpha} - \frac{\sin \alpha}{\cos \alpha}$$

$$= \frac{\cos^2 \alpha - \sin^2 \alpha}{\sin \alpha \cos \alpha} (1M)$$

$$= 2 \frac{\cos 2\alpha}{2 \sin \alpha \cos \alpha}$$

$$= 2 \frac{\cos 2\alpha}{\sin 2\alpha}$$

$$= 2 \cot 2\alpha (1M)$$

(vii)

2π is period of cosec (2M)

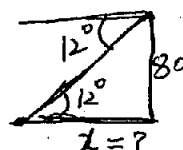
(viii)

$$\alpha = 12^\circ$$

$$\tan \alpha = \frac{a}{b}$$

$$\tan 12^\circ = \frac{80}{x} (1M)$$

$$x = \frac{80}{\tan 12^\circ} = 376m (1M)$$



(ix)

$$2 \sin^2 \frac{\alpha}{2} = 1 - \cos \alpha = 1 - \frac{b^2 + c^2 - a^2}{2bc} (1M)$$

$$\sin^2 \frac{\alpha}{2} = \frac{2(s-b)(s-c)}{4bc}$$

$$\sin \frac{\alpha}{2} = \sqrt{\frac{(s-b)(s-c)}{bc}} (1M)$$

(x)

$$s = \frac{a+b+c}{2} = \frac{18+24+30}{2}$$

$$s = 36 (1M)$$

$$\text{Area } A = \sqrt{s(s-a)(s-b)(s-c)}$$

$$A = \sqrt{36 \times 18 \times 12 \times 6}$$

$$A = 216 \text{ sq. unit} (1M)$$

$$(xi) \left[\left(\frac{\Delta}{s-a} \right) + \left(\frac{\Delta}{s-b} \right) \right] \sqrt{\frac{(s-a)(s-b)}{s(s-c)}} = \Delta \left(\frac{(s-b+s-a)}{(s-a)(s-b)} \right) \frac{(s-a)(s-b)}{\Delta} (1M)$$

$$= c (1M)$$

(xii)

$$\cos 2\alpha = 1 - 2 \sin^2 \alpha (1M)$$

$$\cos(2 \sin^{-1} x) = 1 - 2(\sin(\sin^{-1} x))^2$$

$$= 1 - 2x^2 (1M)$$

(xiii)

$$x = \pi/3 \text{ 2nd and 3rd quad } (1M)$$

$$\left\{ \frac{2\pi}{3}, \frac{4\pi}{3} \right\} (1M)$$

ثانوی واعلیٰ ثانوی تعلیمی بورڈ، ملتان

مورخہ 25/11/25 مضمون: Maths پرچہ: 1st Year گروپ: II

جنرل ہدایات برائے مارکنگ Key (مارکنگ سکیم)

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Q No 5(a)

$$\begin{vmatrix} 1 & -1 & 2 & 1 \\ 2 & -6 & 5 & 1 \\ 3 & 5 & 4 & -3 \end{vmatrix} \sim \begin{vmatrix} 1 & -1 & 2 & 1 \\ 0 & 1 & -1/4 & 1/4 \\ 0 & 8 & -2 & -6 \end{vmatrix} \quad 2M$$

$$\sim \begin{vmatrix} 1 & -1 & 2 & 1 \\ 0 & 1 & -1/4 & 1/4 \\ 0 & 0 & 0 & -8 \end{vmatrix} \quad 2M$$

Rank of matrix = 3 1M

(b)

$$\begin{array}{c|cccc} -1 & 1 & p & q & 6 \\ & -1 & -p+1 & -p-q-1 & \\ \hline & 1 & p-1 & q-p+1 & p-q+5 \\ & 2 & 2 & 2p+2 & \\ \hline & 1 & p+1 & p+q+3 & \end{array} \quad 2M$$

$$p-q+5=0, \quad p+q+3=0 \quad 1M$$

$$p=-4, \quad q=1 \quad 2M$$

Q 6(a)

$$\frac{x^2-2x+3}{x^4+x^2+1} = \frac{x^2-2x+3}{(x^2+1-x)(x^2+1+x)}$$

$$= \frac{Ax+B}{x^2+1-x} + \frac{Cx+D}{x^2+1+x} \quad 2M$$

$$A=-1, \quad B=\frac{1}{2}, \quad C=1, \quad D=\frac{5}{2} \quad 3M$$

Q 6(b)

$$A > G \text{ if } \frac{a+b}{2} > \sqrt{ab}$$

$$\Rightarrow (\sqrt{a}-\sqrt{b})^2 > 0 \text{ true.} \quad 2M$$

Again $G > H$

$$\text{if } \sqrt{ab} > \frac{2ab}{a+b}$$

$$\Rightarrow a+b > 2\sqrt{ab}$$

$$\Rightarrow (\sqrt{a}-\sqrt{b})^2 > 0 \text{ true} \quad 2M$$

From (i) & (ii) $A > G > H$ 1M

F.C
statement is wrong.

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مورخہ 25/11/25 مضمون: Maths پرچہ: 1st Year گروپ: II

جنرل ہدایات برائے مارکنگ Key (مارکنگ سکیم)

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$$Q7(a) \quad {}^{n-1}C_{r-1} : {}^nC_r = \frac{3}{6}$$

$$\frac{(n-1)!}{(r-1)!(n-r)!} \times \frac{r!(n-r)!}{n!} = \frac{3}{6}$$

$$\Rightarrow n = 2r \rightarrow (i) \quad 2M$$

$$\text{Now } {}^nC_r : {}^{n+1}C_{r+1} = 6 : 11$$

$$\frac{n!}{r!(n-r)!} \times \frac{(r+1)!(n-r)!}{(n+1)!} = \frac{6}{11}$$

$$\Rightarrow 11r + 11 = 6n + 6 \rightarrow (ii) \quad 2M$$

$$\text{From (i) \& (ii) } r = 5, n = 10 \quad 1M$$

$$(b) \quad \frac{\sqrt{4+x}}{(1-x)^3} = (4+x)^{1/2} (1-x)^{-3}$$

$$= 4^{1/2} \left(1 + \frac{x}{4}\right)^{1/2} (1-x)^{-3} \quad 1M$$

$$= 2 \left[1 + \frac{1}{2} \left(\frac{x}{4}\right) + \frac{\frac{1}{2} \left(-\frac{1}{2}\right)}{2!} \left(\frac{x}{4}\right)^2 + \dots \right]$$

$$= 2 \left[1 + \left(3 + \frac{1}{8}\right)x + \left(6 + \frac{3}{8} - \frac{1}{128}\right)x^2 + \dots \right] 2M$$

neglecting x^2 and higher power

$$= 2 \left(1 + \frac{25}{8}x \right)$$

$$\approx 2 + \frac{25}{4}x \quad 2M.$$

$$Q8(a) \quad \operatorname{cosec} \theta = \pm \sqrt{1 + \cot^2 \theta} = \pm \frac{17}{8} \quad 2M$$

$\operatorname{cosec} \theta = +\frac{17}{8}$ as terminal arm of angle in quad-I

$$\sin \theta = \frac{8}{17} \Rightarrow \cos \theta = \sqrt{1 - \sin^2 \theta} = \frac{15}{17} \quad 2M$$

1M

F.C
Statement is wrong.

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ثانوی واعلیٰ ثانوی تعلیمی بورڈ، ملتان

مورخہ: 25/11/25 مشن: Maths پرچہ: 1st Year گروپ: II
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$$(b) 2 \cos \frac{3A+A}{2} \cos \frac{3A-A}{2} + 2 \cos \frac{7A+5A}{2} \cos \frac{7A-5A}{2}$$

$$= 2 \cos A (\cos 6A + \cos 2A) \quad 2M$$

$$= 2 \cos A \left[2 \cos \frac{6A+2A}{2} \cos \frac{6A-2A}{2} \right]$$

$$= 4 \cos A \cos 2A \cos 4A \quad 3M$$

Q9(a) for equilateral triangle $a=b=c$
 $\Rightarrow S = \frac{3a}{2}, S-a = \frac{a}{2}, S-b = \frac{a}{2}, S-c = \frac{a}{2}$

$$\Delta = \sqrt{S(S-a)(S-b)(S-c)} = \frac{\sqrt{3}a^2}{4} \quad 1M$$

$$r = \frac{\Delta}{S} = \frac{a}{2\sqrt{3}}, R = \frac{abc}{4\Delta} = \frac{a}{\sqrt{3}} \quad 2M$$

$$\frac{r}{R} = \frac{\frac{a}{2\sqrt{3}}}{\frac{a}{\sqrt{3}}} = \frac{1}{2}$$

$$\frac{R}{r_1} = \frac{\frac{a}{\sqrt{3}}}{\frac{\sqrt{3}a}{2}} = \frac{2}{3} \quad 2M$$

$$\Rightarrow r:R:r_1 = 1:2:3$$

$$(b) \text{ Let } x = \sin^{-1} \frac{1}{\sqrt{5}} \Rightarrow \sin x = \frac{1}{\sqrt{5}} \quad 1M$$

$$\cos x = \frac{2}{\sqrt{5}}$$

$$\text{let } y = \cot^{-1} 3 \Rightarrow \cot y = 3, \tan y = \frac{1}{3}$$

$$\Rightarrow \sec y = \frac{3}{\sqrt{10}} \Rightarrow \cos y = \frac{3}{\sqrt{10}} \quad 2M$$

$$\begin{aligned} \sin(x+y) &= \sin x \cos y + \cos x \sin y \\ &= \frac{1}{\sqrt{5}} \cdot \frac{3}{\sqrt{10}} + \frac{2}{\sqrt{5}} \cdot \frac{1}{\sqrt{10}} = \frac{1}{\sqrt{2}} \quad 2M \end{aligned}$$

$$x+y = \sin^{-1} \frac{1}{\sqrt{2}} \Rightarrow x+y = \frac{\pi}{4}$$

$$\sin^{-1} \frac{1}{\sqrt{5}} + \cot^{-1} 3 = \frac{\pi}{4} \quad 1M$$

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INTERMEDIATE PART-I (11 th Class)		2025 (2 nd -A)	Roll No:
MATHEMATICS PAPER-I GROUP-II			
TIME ALLOWED: 2.30 Hours		SUBJECTIVE	MAXIMUM MARKS: 80
NOTE: Write same question number and its parts number on answer book, as given in the question paper.			
SECTION-I			
2. Attempt any eight parts.			8×2 = 16
(i)	Simplify : (0, 3)(0, 5)	(ii)	Factorize: $9a^2 + 16b^2$
(iii)	Write down the power set of $\{a, \{b, c\}\}$.	(iv)	Give the definitions of Tautology and Absurdity.
(v)	Define Rank of Matrix. Give one example.	(vi)	Solve the system of Linear equations $3x - 5y = 1$ $-2x + y = -3$
(vii)	If $A = \begin{bmatrix} 1 & -1 & 2 \\ 0 & 3 & 1 \end{bmatrix}$ and $B = \begin{bmatrix} 2 & 3 & 0 \\ 1 & 2 & -1 \end{bmatrix}$ then show that $(A + B)' = A' + B'$		
(viii)	If $A = \begin{bmatrix} 2 & 1 \\ 6 & 3 \end{bmatrix}$ then find A^{-1}	(ix)	Evaluate: $(-1 + \sqrt{-3})^5 + (-1 - \sqrt{-3})^5$
(x)	Solve the equation $x^3 + x^2 + x + 1 = 0$		
(xi)	Find the numerical value of k if the polynomial $x^3 + kx^2 - 7x + 6$ has a remainder of -4 , when divided by $(x + 2)$.		
(xii)	Define Reciprocal Equation.		
3. Attempt any eight parts.			8×2 = 16
(i)	Differentiate between proper and improper rational fractions.	(ii)	Resolve into partial fraction $\frac{1}{x^2 - 1}$
(iii)	Define irreducible quadratic factor.		
(iv)	How many terms of the series $-7 + (-5) + (-3) + \dots$ amount to 65?	(v)	Find the 5 th term of G.P 3, 6, 12,
(vi)	Insert three G.M's between 1 and 16.	(vii)	Define geometric progression.
(viii)	Find the probability of an event that does not occur.	(ix)	Define impossible and certain events.
(x)	Evaluate ${}^{20}C_{17}$.	(xi)	Show that $n! > 2^n - 1$ for integral values of $n \geq 4$.
(xii)	Expand in descending powers of x for $(x^2 + x - 1)^3$.		
4. Attempt any nine parts.			9×2 = 18
(i)	What is sexagesimal system of measurement of angle?	(ii)	Find θ when $\ell = 1.5\text{ cm}$, $r = 2.5\text{ cm}$
(iii)	Find x , if $\tan^2 45^\circ - \cos^2 60^\circ = x \sin 45^\circ \cos 45^\circ \tan 60^\circ$	(iv)	State fundamental law of trigonometry.
(v)	If α, β, γ are the angles of a triangle ABC, then prove that $\tan(\alpha + \beta) + \tan \gamma = 0$.		
(vi)	Prove that $\cot \alpha - \tan \alpha = 2 \cot 2\alpha$	(vii)	Find period of $\operatorname{cosec} \theta$.
(viii)	At the top of a cliff 80 m high, the angle of depression of a boat is 12° . How far is the boat from the cliff?		
(ix)	With usual notation, prove that $\sin \frac{A}{2} = \sqrt{\frac{(s-b)(s-c)}{bc}}$ where $s = \frac{a+b+c}{2}$		
(x)	Find area of the triangle ABC, in which $a = 18, b = 24, c = 30$	(xi)	Prove that $(r_1 + r_2) \tan \frac{\gamma}{2} = c$
(xii)	Show that $\cos(2 \sin^{-1} x) = 1 - 2x^2$	(xiii)	Find the solutions of $\sec x = -2$ which lie in $[0, 2\pi]$
SECTION-II			
NOTE: Attempt any three questions.			3×10 = 30
5.(a)	Find the rank of $\begin{bmatrix} 1 & -1 & 2 & 1 \\ 2 & -6 & 5 & 1 \\ 3 & -5 & 4 & -3 \end{bmatrix}$		
(b)	Use synthetic division to find the value of p and q if $x + 1$ and $x - 2$ are the factors of $x^3 + px^2 + qx + 6$.		
6.(a)	Resolve $\frac{x^2 - 2x + 3}{x^4 + x^2 + 1}$ into partial fractions.	(b)	If A, G, H are arithmetic geometric and harmonic means then show that $A > G > H$ if a, b are any distinct positive real numbers and $G = \sqrt{ab}$
7.(a)	Find the values of n and r when ${}^{n-1}C_{r-1} : {}^nC_r : {}^{n+1}C_{r+1} = 3 : 6 : 11$.		
(b)	If x is so small that its square and higher powers can be neglected, then show that $\frac{\sqrt{4+x}}{(1-3)^3} \approx 2 + \frac{25}{4}x$		
8.(a)	If $\cot \theta = \frac{15}{8}$ and the terminal arm of the angle is not in quad $-I$, find the values of $\cos \theta$ and $\operatorname{cosec} \theta$.		
(b)	Express the following as a product of $\cos A + \cos 3A + \cos 5A + \cos 7A$.		
9.(a)	Prove that in an equilateral triangle $r : R : r_1 = 1 : 2 : 3$		
(b)	Prove that $\sin^{-1} \frac{1}{\sqrt{5}} + \cot^{-1} 3 = \frac{\pi}{4}$		

Paper Code Number: 2192		2025 (2 nd -A) INTERMEDIATE PART-I (11 th Class)		Roll No:	
MATHEMATICS PAPER-I GROUP-II					
TIME ALLOWED: 30 Minutes		OBJECTIVE		MAXIMUM MARKS: 20	
Q.No.1	You have four choices for each objective type question as A, B, C and D. The choice which you think is correct, fill that bubble in front of that question number, on bubble sheet. Use marker or pen to fill the bubbles. Cutting or filling two or more bubbles will result in zero mark in that question.				
S.#	QUESTIONS	A	B	C	D
1	$\cos \frac{\pi}{3} + i \sin \frac{\pi}{3}$ is the Polar representation of:	$\sqrt{3} + i$	$1 + i\sqrt{3}$	$-1 + \sqrt{3}i$	$-1 - \sqrt{3}i$
2	If 'n' is prime number then $\sqrt{n}$ is:	Rational	Integer	Irrational	Even integer
3	If $a, b \in G$ then $(ab)^{-1} =$:	$b^{-1}a^{-1}$	$a^{-1}b$	ab^{-1}	$a^{-1}b^{-1}$
4	$\begin{bmatrix} 1 & 2 \\ 3 & 4 \end{bmatrix}$ is adjoint of Matrix:	$\begin{bmatrix} 4 & -2 \\ -3 & -1 \end{bmatrix}$	$\begin{bmatrix} -4 & -2 \\ -3 & 1 \end{bmatrix}$	$\begin{bmatrix} 4 & -2 \\ -3 & 1 \end{bmatrix}$	$\begin{bmatrix} 4 & 2 \\ -3 & 1 \end{bmatrix}$
5	$\begin{vmatrix} 1 & 2 & 3x \\ 2 & 3 & 6x \\ 3 & 5 & 9x \end{vmatrix} =$:	0	2	3	5
6	The value of $(1 + \omega - \omega^2)(1 - \omega + \omega^2)$ is:	4ω	4	-4ω	-4
7	The solution of $x^2 - y^2 = 5$ is:	(2,3)	(-2,-3)	(1,4)	(3,2)
8	An equation which is true for all values of variable is called:	Conditional equation	Equality	Identity	Inequality
9	With usual notation $A \times H =$:	A^2	G^2	H^2	G
10	H.M between a & b is:	$\frac{a+b}{2ab}$	$\frac{a+b}{ab}$	$\frac{2(a+b)}{ab}$	$\frac{2ab}{a+b}$
11	${}^nC_0 =$:	nC_n	nP_2	nC_1	${}^nC_{n+1}$
12	An algebraic expression consisting of two terms is called:	Monomial	Trinomial	Binomial	Polynomial
13	The value of $\sin\left(\frac{7\pi}{2}\right)$ is:	1	-1	0	$\frac{1}{2}$
14	$\cos 315^\circ =$:	$-\frac{1}{\sqrt{2}}$	$\frac{\sqrt{3}}{2}$	$-\frac{\sqrt{3}}{2}$	$\frac{1}{\sqrt{2}}$
15	$\sin \theta =$:	$\sin \frac{\theta}{2} \cos \frac{\theta}{2}$	$\sin \theta \cos \theta$	$2 \sin \frac{\theta}{2} \cos \frac{\theta}{2}$	$-2 \sin \frac{\theta}{2} \cos \frac{\theta}{2}$
16	The domain of $\sin x$ is:	$\mathbb{R}$	Z	IQ	C
17	The area of the triangle ABC with $b = 4, c = 2, \alpha = 30^\circ$ is:	2	$\frac{1}{4}$	4	$\frac{1}{2}$
18	$r_3 =$:	$S \tan \frac{\alpha}{2}$	$S \tan \frac{\beta}{2}$	$S \tan \frac{\gamma}{2}$	Both A & B
19	The reference angle of $\cos x = \frac{1}{2}$ is:	$\frac{\pi}{4}$	$\frac{3\pi}{4}$	$\frac{\pi}{6}$	$\frac{\pi}{3}$
20	$\cos^{-1}\left(\frac{-1}{2}\right) =$:	$-\frac{\pi}{3}$	$\frac{2\pi}{3}$	$\frac{\pi}{3}$	$\frac{4\pi}{3}$

Paper Code Number: 2194		2025 (2 nd -A) INTERMEDIATE PART-I (11 th Class)		Roll No: _____	
MATHEMATICS PAPER-I GROUP-II					
TIME ALLOWED: 30 Minutes		OBJECTIVE		MAXIMUM MARKS: 20	
Q.No.1	You have four choices for each objective type question as A, B, C and D. The choice which you think is correct, fill that bubble in front of that question number, on bubble sheet. Use marker or pen to fill the bubbles. Cutting or filling two or more bubbles will result in zero mark in that question.				
S.#	QUESTIONS	A	B	C	D
1	"C ₀ =:	"C _n	"P ₂	"C ₁	"C _{n+1}
2	An algebraic expression consisting of two terms is called:	Monomial	Trinomial	Binomial	Polynomial
3	The value of $\sin\left(\frac{7\pi}{2}\right)$ is :	1	-1	0	$\frac{1}{2}$
4	$\cos 315^\circ = :$	$-\frac{1}{\sqrt{2}}$	$\frac{\sqrt{3}}{2}$	$-\frac{\sqrt{3}}{2}$	$\frac{1}{\sqrt{2}}$
5	$\sin \theta =:$	$\sin \frac{\theta}{2} / \cos \frac{\theta}{2}$	$\sin \theta \cos \theta$	$2 \sin \frac{\theta}{2} / \cos \frac{\theta}{2}$	$-2 \sin \frac{\theta}{2} / \cos \frac{\theta}{2}$
6	The domain of $\sin x$ is:	$\mathbb{R}$	$\mathbb{Z}$	$\mathbb{IQ}$	$\mathbb{C}$
7	The area of the triangle ABC with $b = 4, c = 2, \alpha = 30^\circ$ is:	2	$\frac{1}{4}$	4	$\frac{1}{2}$
8	$r_3 =:$	$S \tan \frac{\alpha}{2}$	$S \tan \frac{\beta}{2}$	$S \tan \frac{\gamma}{2}$	Both A & B
9	The reference angle of $\cos x = \frac{1}{2}$ is:	$\frac{\pi}{4}$	$\frac{3\pi}{4}$	$\frac{\pi}{6}$	$\frac{\pi}{3}$
10	$\cos^{-1}\left(\frac{-1}{2}\right) = :$	$-\frac{\pi}{3}$	$\frac{2\pi}{3}$	$\frac{\pi}{3}$	$\frac{4\pi}{3}$
11	$\cos \frac{\pi}{3} + i \sin \frac{\pi}{3}$ is the Polar representation of:	$\sqrt{3} + i$	$1 + i\sqrt{3}$	$-1 + \sqrt{3}i$	$-1 - \sqrt{3}i$
12	If 'n' is prime number then $\sqrt{n}$ is:	Rational	Integer	Irrational	Even integer
13	If $a, b \in G$ then $(ab)^{-1} =:$	$b^{-1}a^{-1}$	$a^{-1}b$	ab^{-1}	$a^{-1}b^{-1}$
14	$\begin{bmatrix} 1 & 2 \\ 3 & 4 \end{bmatrix}$ is adjoint of Matrix:	$\begin{bmatrix} 4 & -2 \\ -3 & -1 \end{bmatrix}$	$\begin{bmatrix} -4 & -2 \\ -3 & 1 \end{bmatrix}$	$\begin{bmatrix} 4 & -2 \\ -3 & 1 \end{bmatrix}$	$\begin{bmatrix} 4 & 2 \\ -3 & 1 \end{bmatrix}$
15	$\begin{vmatrix} 1 & 2 & 3x \\ 2 & 3 & 6x \\ 3 & 5 & 9x \end{vmatrix} =:$	0	2	3	5
16	The value of $(1 + \omega - \omega^2)(1 - \omega + \omega^2)$ is:	4ω	4	-4ω	-4
17	The solution of $x^2 - y^2 = 5$ is:	(2,3)	(-2,-3)	(1,4)	(3,2)
18	An equation which is true for all values of variable is called:	Conditional equation	Equality	Identity	Inequality
19	With usual notation $A \times H =:$	A^2	G^2	H^2	G
20	H.M between a & b is:	$\frac{a+b}{2ab}$	$\frac{a+b}{ab}$	$\frac{2(a+b)}{ab}$	$\frac{2ab}{a+b}$

Paper Code Number: 2196		2025 (2 nd -A) INTERMEDIATE PART-I (11 th Class)		Roll No: _____	
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2	The area of the triangle ABC with $b = 4, c = 2, \alpha = 30^\circ$ is:	2	$\frac{1}{4}$	4	$\frac{1}{2}$
3	$r_3 =$:	$S \tan \frac{\alpha}{2}$	$S \tan \frac{\beta}{2}$	$S \tan \frac{\gamma}{2}$	Both A & B
4	The reference angle of $\cos x = \frac{1}{2}$ is:	$\frac{\pi}{4}$	$\frac{3\pi}{4}$	$\frac{\pi}{6}$	$\frac{\pi}{3}$
5	$\cos^{-1}\left(\frac{-1}{2}\right) =$:	$\frac{-\pi}{3}$	$\frac{2\pi}{3}$	$\frac{\pi}{3}$	$\frac{4\pi}{3}$
6	$\cos \frac{\pi}{3} + i \sin \frac{\pi}{3}$ is the Polar representation of:	$\sqrt{3} + i$	$1 + i\sqrt{3}$	$-1 + \sqrt{3}i$	$-1 - \sqrt{3}i$
7	If 'n' is prime number then $\sqrt{n}$ is:	Rational	Integer	Irrational	Even integer
8	If $a, b \in G$ then $(ab)^{-1} =$:	$b^{-1}a^{-1}$	$a^{-1}b$	ab^{-1}	$a^{-1}b^{-1}$
9	$\begin{bmatrix} 1 & 2 \\ 3 & 4 \end{bmatrix}$ is adjoint of Matrix:	$\begin{bmatrix} 4 & -2 \\ -3 & -1 \end{bmatrix}$	$\begin{bmatrix} -4 & -2 \\ -3 & 1 \end{bmatrix}$	$\begin{bmatrix} 4 & -2 \\ -3 & 1 \end{bmatrix}$	$\begin{bmatrix} 4 & 2 \\ -3 & 1 \end{bmatrix}$
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14	With usual notation $A \times H =$:	A^2	G^2	H^2	G
15	H.M between a & b is:	$\frac{a+b}{2ab}$	$\frac{a+b}{ab}$	$\frac{2(a+b)}{ab}$	$\frac{2ab}{a+b}$
16	${}^nC_0 =$:	nC_n	nP_2	nC_1	${}^nC_{n+1}$
17	An algebraic expression consisting of two terms is called:	Monomial	Trinomial	Binomial	Polynomial
18	The value of $\sin\left(\frac{7\pi}{2}\right)$ is:	1	-1	0	$\frac{1}{2}$
19	$\cos 315^\circ =$:	$-\frac{1}{\sqrt{2}}$	$\frac{\sqrt{3}}{2}$	$-\frac{\sqrt{3}}{2}$	$\frac{1}{\sqrt{2}}$
20	$\sin \theta =$:	$\sin \frac{\theta}{2} \cos \frac{\theta}{2}$	$\sin \theta \cos \theta$	$2 \sin \frac{\theta}{2} \cos \frac{\theta}{2}$	$-2 \sin \frac{\theta}{2} \cos \frac{\theta}{2}$

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8	The value of $\sin\left(\frac{7\pi}{2}\right)$ is :	1	-1	0	$\frac{1}{2}$
9	$\cos 315^\circ =$:	$-\frac{1}{\sqrt{2}}$	$\frac{\sqrt{3}}{2}$	$-\frac{\sqrt{3}}{2}$	$\frac{1}{\sqrt{2}}$
10	$\sin \theta =$:	$\frac{\sin \theta / 2 \cos \theta / 2}{-1/2}$	$\sin \theta \cos \theta$	$2 \sin \theta / 2 \cos \theta / 2$	$-2 \sin \theta / 2 \cos \theta / 2$
11	The domain of $\sin x$ is:	$\mathbb{R}$	$\mathbb{Z}$	$\mathbb{Q}$	$\mathbb{C}$
12	The area of the triangle ABC with $b = 4, c = 2, \alpha = 30^\circ$ is:	2	$\frac{1}{4}$	4	$\frac{1}{2}$
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16	$\cos \frac{\pi}{3} + i \sin \frac{\pi}{3}$ is the Polar representation of	$\sqrt{3} + i$	$1 + i\sqrt{3}$	$-1 + \sqrt{3}i$	$-1 - \sqrt{3}i$
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