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BOARD OF INTERMEDIATE AND SECONDARY EDUCATION, MULTAN.
OBJECTIVE KEY FOR INTERMEDIATE 2nd ANNUAL EXAMINATION, 2024

Name of Subject: Mathematics, Part - I Group: I

Q. Nos	Paper Code 2191	Correct Answer	Paper Code 2193	Correct Answer	Paper Code 2195	Correct Answer	Paper Code 2197	Correct Answer
1	B	Irrational	C	$2^n - 1 = 0$	D	Binomial	A	IR
2	D	$\sqrt{2}$	B	1	F.C	A, B, C, D	D	$\frac{\Delta}{s-a}$
3	A	Biconditional	A	3	D	$-\cos\theta$	A	0
4	B	Range $f = B$	D	G^2	A	IR	B	45°
5	C	Multiplication	C	x	D	$\frac{\Delta}{s-a}$	B	Irrational
6	D	PXM	B	nC_n	A	0	D	$\sqrt{2}$
7	B	-1	D	Binomial	B	45°	A	Biconditional
8	C	$2^n - 1 = 0$	F.C	A, B, C, D	B	Irrational	B	Range $f = B$
9	B	1	D	$-\cos\theta$	D	$\sqrt{2}$	C	Multiplication
10	A	3	A	IR	A	Biconditional	D	PXM
11	D	G^2	D	$\frac{\Delta}{s-a}$	B	Range $f = B$	B	-1
12	C	x	A	0	C	Multiplication	C	$2^n - 1 = 0$
13	B	nC_n	B	45°	D	PXM	B	1
14	D	Binomial	B	Irrational	B	-1	A	3
15	F.C	A, B, C, D	D	$\sqrt{2}$	C	$2^n - 1 = 0$	D	G^2
16	D	$-\cos\theta$	A	Biconditional	B	1	C	x
17	A	IR	B	Range $f = B$	A	3	B	nC_n
18	D	$\frac{\Delta}{s-a}$	C	Multiplication	D	G^2	D	Binomial
19	A	0	D	PXM	C	x	F.C	A, B, C, D
20	B	45°	B	-1	B	nC_n	D	$-\cos\theta$
Cross Check	A B C D		A B C D		A B C D		A B C D	
Total	4 6 3 6		4 6 3 6		4 6 3 6		4 6 3 6	

سرٹیفکیٹ بابت صحیح سوالیہ پرچہ / مارکنگ Key

ہم نے مضمون Maths پرچہ I گروپ I انٹر میڈیٹ دوسرا 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: 12-11-2024

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Paper Code Number: 2191		2024 (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 'n' is the prime number then $\sqrt{n}$ is:	Rational	Irrational	Prime number	Even number
2	If $z = 1 - i$ then $ z =$	2	-2	$-\sqrt{2}$	$\sqrt{2}$
3	Proposition $p \leftrightarrow q$ represents:	Biconditional	Disjunction	Conditional	Conjunction
4	A function $f : A \rightarrow B$ is Surjective if:	Range $f = A$	Range $f = B$	Range $f \neq B$	Range $f \neq A$
5	$\{1, w, w^2\}$ is group under:	Addition	Subtraction	Multiplication	Division
6	If order of matrix A is $m \times n$ and order of matrix B is $n \times p$, then order of matrix $(AB)^t$ is:	$m \times p$	$n \times m$	$m \times n$	$p \times m$
7	If $A = \begin{vmatrix} 2 & 1 \\ 6 & 3 \end{vmatrix}$ then cofactor of 6 is:	1	-1	-6	3
8	Which is an exponential equation?	$x^2 + 1 = 0$	$x^3 + 1 = 0$	$2^x - 1 = 0$	$2x + 1 = 0$
9	If ω is a cube root of unity then $\omega^9 =$	0	1	ω	ω^2
10	If $(2x + 1) = A(x + 1) + B(x + 2)$, then $A =$ _____	3	4	5	1
11	With usual notations, $A \times H =$ _____	A^2	H^2	G	G^2
12	A.M between $x - 1$ and $x + 1 =$	0	2	x	$2x$
13	${}^nC_0 =$ _____	nP_2	nC_n	nC_2	${}^nC_{n+1}$
14	An algebraic expression consisting of two terms is called:	Monomial	Trinomial	Polynomial	Binomial
15	Which is not Quadrant Angle?	$\frac{9}{2}\pi$	13π	$\frac{4}{3}\pi$	$\frac{\pi}{2}$
16	$\sin\left(\frac{3\pi}{2} - \theta\right) =$	$\sin \theta$	$-\sin \theta$	$\cos \theta$	$-\cos \theta$
17	Domain of cosine function is:	IR	Z	C	N
18	Radius of escribed circle opposite to vertex $A =$	$\frac{\Delta}{s}$	$\frac{\Delta}{s - b}$	$\frac{\Delta}{s - c}$	$\frac{\Delta}{s - a}$
19	$\sin(\tan^{-1}(0)) =$	0	1	-1	∞
20	If $\sin x = \cos x$ then $x =$	30°	45°	0°	60°

Paper Code Number: 2193		2024 (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	Which is an exponential equation?	$x^2 + 1 = 0$	$x^3 + 1 = 0$	$2^x - 1 = 0$	$2x + 1 = 0$
2	If ω is a cube root of unity then $\omega^9 =$	0	1	ω	ω^2
3	If $(2x + 1) = A(x + 1) + B(x + 2)$, then $A =$ _____	3	4	5	1
4	With usual notations, $A \times H =$ _____	A^2	H^2	G	G^2
5	A.M between $x - 1$ and $x + 1 =$	0	2	x	$2x$
6	${}^nC_0 =$ _____	nP_2	nC_n	nC_2	${}^nC_{n+1}$
7	An algebraic expression consisting of two terms is called:	Monomial	Trinomial	Polynomial	Binomial
8	Which is not Quadrant Angle?	$\frac{9}{2}\pi$	13π	$\frac{4}{3}\pi$	$\frac{\pi}{2}$
9	$\sin\left(\frac{3\pi}{2} - \theta\right) =$	$\sin \theta$	$-\sin \theta$	$\cos \theta$	$-\cos \theta$
10	Domain of cosine function is:	$\mathbb{R}$	$\mathbb{Z}$	$\mathbb{C}$	$\mathbb{N}$
11	Radius of escribed circle opposite to vertex $A =$	$\frac{\Delta}{s}$	$\frac{\Delta}{s - b}$	$\frac{\Delta}{s - c}$	$\frac{\Delta}{s - a}$
12	$\sin(\tan^{-1}(0)) =$	0	1	-1	∞
13	If $\sin x = \cos x$ then $x =$	30°	45°	0°	60°
14	If ' n ' is the prime number then $\sqrt{n}$ is:	Rational	Irrational	Prime number	Even number
15	If $z = 1 - i$ then $ z =$	2	-2	$-\sqrt{2}$	$\sqrt{2}$
16	Proposition $p \leftrightarrow q$ represents:	Biconditional	Disjunction	Conditional	Conjunction
17	A function $f : A \rightarrow B$ is Surjective if:	Range $f = A$	Range $f = B$	Range $f \neq B$	Range $f \neq A$
18	$\{1, w, w^2\}$ is group under:	Addition	Subtraction	Multiplication	Division
19	If order of matrix A is $m \times n$ and order of matrix B is $n \times p$, then order of matrix $(AB)^t$ is:	$m \times p$	$n \times m$	$m \times n$	$p \times m$
20	If $A = \begin{vmatrix} 2 & 1 \\ 6 & 3 \end{vmatrix}$ then cofactor of 6 is:	1	-1	-6	3

Paper Code Number: 2195		2024 (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	An algebraic expression consisting of two terms is called:	Monomial	Trinomial	Polynomial	Binomial
2	Which is not Quadrant Angle?	$\frac{9}{2}\pi$	13π	$\frac{4}{3}\pi$	$\frac{\pi}{2}$
3	$\sin\left(\frac{3\pi}{2}-\theta\right) =$	$\sin \theta$	$-\sin \theta$	$\cos \theta$	$-\cos \theta$
4	Domain of cosine function is:	IR	Z	C	N
5	Radius of escribed circle opposite to vertex $A =$	$\frac{\Delta}{s}$	$\frac{\Delta}{s-b}$	$\frac{\Delta}{s-c}$	$\frac{\Delta}{s-a}$
6	$\sin(\tan^{-1}(0)) =$	0	1	-1	∞
7	If $\sin x = \cos x$ then $x =$	30°	45°	0°	60°
8	If ' n ' is the prime number then $\sqrt{n}$ is:	Rational	Irrational	Prime number	Even number
9	If $z = 1 - i$ then $ z =$	2	-2	$-\sqrt{2}$	$\sqrt{2}$
10	Proposition $p \leftrightarrow q$ represents:	Biconditional	Disjunction	Conditional	Conjunction
11	A function $f : A \rightarrow B$ is Surjective if:	Range $f = A$	Range $f = B$	Range $f \neq B$	Range $f \neq A$
12	$\{1, w, w^2\}$ is group under:	Addition	Subtraction	Multiplication	Division
13	If order of matrix A is $m \times n$ and order of matrix B is $n \times p$, then order of matrix $(AB)^t$ is:	$m \times p$	$n \times m$	$m \times n$	$p \times m$
14	If $A = \begin{vmatrix} 2 & 1 \\ 6 & 3 \end{vmatrix}$ then cofactor of 6 is:	1	-1	-6	3
15	Which is an exponential equation?	$x^2 + 1 = 0$	$x^3 + 1 = 0$	$2^x - 1 = 0$	$2x + 1 = 0$
16	If ω is a cube root of unity then $\omega^9 =$	0	1	ω	ω^2
17	If $(2x + 1) = A(x + 1) + B(x + 2)$, then $A =$ _____	3	4	5	1
18	With usual notations, $A \times H =$ _____	A^2	H^2	G	G^2
19	A.M between $x - 1$ and $x + 1 =$	0	2	x	$2x$
20	${}^nC_0 =$ _____	nP_2	nC_n	nC_2	${}^nC_{n+1}$

Paper Code Number: 2197		2024 (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	Domain of cosine function is:	IR	Z	C	N
2	Radius of escribed circle opposite to vertex $A =$	$\frac{\Delta}{s}$	$\frac{\Delta}{s-b}$	$\frac{\Delta}{s-c}$	$\frac{\Delta}{s-a}$
3	$\sin(\tan^{-1}(0)) =$	0	1	-1	∞
4	If $\sin x = \cos x$ then $x =$	30°	45°	0°	60°
5	If ' n ' is the prime number then $\sqrt{n}$ is:	Rational	Irrational	Prime number	Even number
6	If $z = 1 - i$ then $ z =$	2	-2	$-\sqrt{2}$	$\sqrt{2}$
7	Proposition $p \leftrightarrow q$ represents:	Biconditional	Disjunction	Conditional	Conjunction
8	A function $f : A \rightarrow B$ is Surjective if:	Range $f = A$	Range $f = B$	Range $f \neq B$	Range $f \neq A$
9	$\{1, w, w^2\}$ is group under:	Addition	Subtraction	Multiplication	Division
10	If order of matrix A is $m \times n$ and order of matrix B is $n \times p$, then order of matrix $(AB)^t$ is:	$m \times p$	$n \times m$	$m \times n$	$p \times m$
11	If $A = \begin{vmatrix} 2 & 1 \\ 6 & 3 \end{vmatrix}$ then cofactor of 6 is:	1	-1	-6	3
12	Which is an exponential equation?	$x^2 + 1 = 0$	$x^{3*} + 1 = 0$	$2^x - 1 = 0$	$2x + 1 = 0$
13	If ω is a cube root of unity then $\omega^9 =$	0	1	ω	ω^2
14	If $(2x + 1) = A(x + 1) + B(x + 2)$, then $A =$ _____	3	4	5	1
15	With usual notations, $A \times H =$ _____	A^2	H^2	G	G^2
16	A.M between $x - 1$ and $x + 1 =$	0	2	x	$2x$
17	${}^nC_0 =$ _____	nP_2	nC_n	nC_2	${}^nC_{n+1}$
18	An algebraic expression consisting of two terms is called:	Monomial	Trinomial	Polynomial	Binomial
19	Which is not Quadrant Angle?	$\frac{9}{2}\pi$	13π	$\frac{4}{3}\pi$	$\frac{\pi}{2}$
20	$\sin\left(\frac{3\pi}{2} - \theta\right) =$	$\sin \theta$	$-\sin \theta$	$\cos \theta$	$-\cos \theta$

INTERMEDIATE PART-I (11 th Class)		2024 (2 nd -A)	Roll No: _____
MATHEMATICS PAPER-I GROUP-I		SUBJECTIVE	MAXIMUM MARKS: 80
TIME ALLOWED: 2.30 Hours			
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)	Show that $\forall z \in \mathbb{C}; z^2 + (z)^{-2}$ is a real number.	(ii)	Simplify $(5, -4) \div (-3, -8)$
(iii)	Find the real and imaginary parts of $(\sqrt{3} + i)^3$	(iv)	Prove that $\bar{z} = z$ if z is real.
(v)	Show that $(A \cap B)' \subseteq A' \cup B'$	(vi)	Prove that $p \wedge \sim p$ is absurdity.
(vii)	Find multiplicative inverse of $\begin{bmatrix} 3 & -1 \\ 2 & 1 \end{bmatrix}$	(viii)	If $A = \begin{bmatrix} 4 & \lambda & 3 \\ 7 & 3 & 6 \\ 2 & 3 & 1 \end{bmatrix}$ is singular, find value of λ
(ix)	Show that $\begin{bmatrix} 1 & 1-i \\ 1+i & 2 \end{bmatrix}$ is Hermitian Matrix.	(x)	Prove that sum of cube roots of unity is zero.
(xi)	Define Remainder's theorem.		
(xii)	If α and β are roots of $x^2 - px - p - c = 0$, then show that $(1 + \alpha)(1 + \beta) = 1 - c$		
3. Attempt any eight parts.			8 × 2 = 16
(i)	Define Improper Rational Fraction. Give an example.		
(ii)	State resolution of $\frac{P(x)}{Q(x)}$ into partial fractions when $Q(x)$ has repeated Linear factors.		
(iii)	Find four A.Ms. between $\sqrt{2}$ and $\frac{12}{\sqrt{2}}$	(iv)	Find the sum of infinite G.P. $2, \sqrt{2}, 1, \dots$
(v)	Find 8 th term of H.P; $\frac{1}{2}, \frac{1}{5}, \frac{1}{8}, \dots$	(vi)	Sum the series $1^2 + 3^2 + 5^2 + \dots$ upto n terms.
(vii)	Evaluate $\frac{11!}{2! 4! 5!}$	(viii)	Find 'n' when ${}^{11}P_n = 11.10.9$
(ix)	In how many ways can 4 keys be arranged on a circular key ring?	(x)	Find the 5 th term of $\left(x^2 - \frac{3}{2x}\right)^{10}$
(xi)	Calculate $(9.98)^4$ by means of binomial theorem.	(xii)	Expand $(1 + 2x)^{-1}$ upto 4 terms.
4. Attempt any nine parts.			9 × 2 = 18
(i)	Derive conversion of radian into degree and vice versa.	(ii)	Prove that $\cos \theta + \tan \theta \sin \theta = \sec \theta$
(iii)	Prove that $\cos(\alpha + 45^\circ) = \frac{1}{\sqrt{2}}(\cos \alpha - \sin \alpha)$	(iv)	Prove that $\frac{\sin 2\alpha}{1 + \cos 2\alpha} = \tan \alpha$
(v)	Express $2 \sin 7\theta \cos 3\theta$ as a sum.		
(vi)	Write domain and range of $\tan x$	(vii)	Find period of $\operatorname{cosec} \frac{x}{4}$
(viii)	Draw the graph of $\cot x$, where $x \in (0, \pi)$	(ix)	Show that $r_1 = s \tan \frac{\alpha}{2}$
(x)	Find area of triangle with $b = 37, c = 45, \alpha = 30^\circ 50'$		
(xi)	A vertical pole is 8m high and length of its shadow is 6m, what is angle of elevation of sun?		
(xii)	Prove that $\sin^{-1} x = \frac{\pi}{2} - \cos^{-1} x$	(xiii)	Solve $\tan^2 \theta = \frac{1}{3}$
SECTION-II			
NOTE: Attempt any three questions.			3 × 10 = 30
5.(a)	Show that $\begin{vmatrix} a+\ell & a & a \\ a & a+\ell & a \\ a & a & a+\ell \end{vmatrix} = \ell^2(3a + \ell)$	(b)	Solve the equation $4^{1+x} + 4^{1-x} = 10$
6.(a)	Resolve $\frac{x^2 - 2x + 3}{x^4 + x^2 + 1}$ into partial fractions.		
(b)	If a^2, b^2, c^2 are in A.P. show that $\frac{1}{b+c}, \frac{1}{c+a}, \frac{1}{a+b}$ are in A.P.		
7.(a)	A die is thrown. Find the probability that dots on the top are prime number or odd number.		
(b)	Expand $(1 - 2x)^{1/3}$ to four terms and apply it to evaluate $(.8)^{1/3}$ correct to three decimal places.		
8.(a)	If $\sin \alpha = \frac{4}{5}$ and $\cos \beta = \frac{40}{41}$ where $0 < \alpha < \frac{\pi}{2}$ and $0 < \beta < \frac{\pi}{2}$. Show that $\sin(\alpha - \beta) = \frac{1}{13}$		
(b)	The sides of a triangles are $x^2 + x + 1, 2x + 1$ and $x^2 - 1$. Prove that the greatest angle of the triangle is 120° .		
9.(a)	If $\cot \theta = \frac{5}{2}$ and the terminal arm of the angle is in the I quad., find the value of $\frac{3 \sin \theta + 4 \cos \theta}{\cos \theta + \sin \theta}$		
(b)	Prove that $\tan^{-1} \frac{3}{4} + \tan^{-1} \frac{3}{5} - \tan^{-1} \frac{8}{9} = \frac{\pi}{4}$		

BOARD OF INTERMEDIATE AND SECONDARY EDUCATION, MULTAN.
OBJECTIVE KEY FOR INTERMEDIATE 2nd ANNUAL EXAMINATION, 2024

Name of Subject: Maths , Part - I Group: II

Q. Nos	Paper Code	Correct Answer	Paper Code	Correct Answer	Paper Code	Correct Answer	Paper Code	Correct Answer
	2192		2194		2196		2198	
1	B	$\frac{\sqrt{2}}{2}$	D	$-\cos x$	C	$a+c$	D	$\begin{bmatrix} 4 & -2 \\ -3 & 1 \end{bmatrix}$
2	D	${}^7(0,1)$	B	$-\infty < y < +\infty$	B	$\frac{1}{2}$	A	A
3	A	4	A	2	D	nC_8	B	4
4	F. credit	F. credit	C	$-\frac{\pi}{6}$	C	$4x^2$	A	3
5	C	$b^1 a^1$	D	$\frac{\pi}{6}$	A	$\frac{1}{2}$	D	Identity
6	D	$\begin{bmatrix} 4 & -2 \\ -3 & 1 \end{bmatrix}$	B	$\frac{\sqrt{2}}{2}$	D	$-\cos x$	C	$a+c$
7	A	A	D	$(0,1)^T$	B	$-\infty < y < +\infty$	B	$\frac{1}{2}$
8	B	4	A	4	A	2	D	nC_8
9	A	3	F. credit	F. credit	C	$-\frac{\pi}{6}$	C	$4x^2$
10	D	Identity	C	$b^1 a^1$	D	$\frac{\pi}{6}$	A	$\frac{1}{2}$
11	C	$a+c$	D	$\begin{bmatrix} 4 & -2 \\ -3 & 1 \end{bmatrix}$	B	$\frac{\sqrt{2}}{2}$	D	$-\cos x$
12	B	$\frac{1}{2}$	A	A	D	$(0,1)^T$	B	$-\infty < y < +\infty$
13	D	nC_8	B	4	A	4	A	2
14	C	$4x^2$	A	3	F. credit	F. credit	C	$-\frac{\pi}{6}$
15	A	$\frac{1}{2}$	D	Identity	C	$b^1 a^1$	D	$\frac{\pi}{6}$
16	D	$-\cos x$	C	$a+c$	D	$\begin{bmatrix} 4 & -2 \\ -3 & 1 \end{bmatrix}$	B	$\frac{\sqrt{2}}{2}$
17	B	$-\infty < y < +\infty$	B	$\frac{1}{2}$	A	A	D	$(0,1)^T$
18	A	2	D	nC_8	B	4	A	4
19	C	$-\frac{\pi}{6}$	C	$4x^2$	A	3	F. credit	F. credit
20	D	$\frac{\pi}{6}$	A	$\frac{1}{2}$	D	Identity	C	$b^1 a^1$
Cross Check	A B C D		A B C D		A B C D		A B C D	
Total	5446		5446		5446		5446	

سرٹیفکیٹ بابت صحیح سوالیہ پرچہ / مارکنگ Key

ہم نے مضمون Maths پرچہ I گروپ II انٹرمیڈیٹ دوسرا 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: 12-11-2024

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Paper Code Number: 2192		2024 (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	If $z = (\sqrt{2}, -\sqrt{5})$, then real part of z^{-1} will be:	$\frac{-\sqrt{2}}{7}$	$\frac{\sqrt{2}}{7}$	$\frac{\sqrt{2}}{5}$	$\frac{-\sqrt{2}}{5}$
2	$\cos \frac{\pi}{2} + i \sin \frac{\pi}{2}$ is a polar form of:	(0, -1)	(-1, 0)	(1, 0)	(0, 1)
3	If $A = \{a, \{b, c\}\}$, then $nP(A)$ equals:	4	3	2	9
4	The converse of $\sim p \rightarrow \sim q$ equals:	$p \rightarrow \sim q$	$q \rightarrow \sim p$	$\sim p \rightarrow \sim q$	$q \rightarrow p$
5	If $a, b \in G$, then $(ab)^{-1}$ will be:	ab^{-1}	$a^{-1}b$	$b^{-1}a^{-1}$	$a^{-1}b^{-1}$
6	$\begin{bmatrix} 1 & 2 \\ 3 & 4 \end{bmatrix}$ is adjoint of matrix:	$\begin{bmatrix} 4 & -2 \\ -3 & -1 \end{bmatrix}$	$\begin{bmatrix} -4 & -2 \\ -3 & 1 \end{bmatrix}$	$\begin{bmatrix} 4 & 2 \\ -3 & 1 \end{bmatrix}$	$\begin{bmatrix} 4 & -2 \\ -3 & 1 \end{bmatrix}$
7	Square matrix A is called Hermitian if $(\bar{A})'$ is:	A	$\bar{A}$	$-A$	$-\bar{A}$
8	The value of $(1 + \omega - \omega^2)(1 - \omega + \omega^2)$ where $\omega^3 = 1$ is:	4ω	4	-4ω	-4
9	If α and β are roots of $x^2 - 3x + 5 = 0$, then $\alpha + \beta$ will be:	3	-3	5	-5
10	An equation which is true for all values of variable is called:	Conditional equation	Equality	Inequality	Identity
11	If a, b, c are in A.P, then $2b$ will be:	$a + b$	$a - b$	$a + c$	$a - c$
12	If $\frac{a^n + b^n}{a^{n-1} + b^{n-1}}$ is +ve G.M between a and b , then n will be:	1	$\frac{1}{2}$	-1	$-\frac{1}{2}$
13	$\frac{n!}{(n-r)!r!}$ will be equal to:	nP_r	rP_n	rC_n	nC_r
14	The 3 rd term in the expansion of $(1 + 2x)^{-1}$ equals:	x^2	$2x^2$	$4x^2$	$14x^2$
15	$\cos\left(\frac{13\pi}{3}\right)$ equals:	$\frac{1}{2}$	1	$\frac{\sqrt{3}}{2}$	$\frac{1}{\sqrt{2}}$
16	If $\alpha + \beta + \gamma = 180^\circ$, then $\cos(\alpha + \beta)$ will be:	$\cos \gamma$	$\sin \gamma$	$-\sin \gamma$	$-\cos \gamma$
17	Range of $y = \cot x$ is:	$-\infty < x < +\infty$	$-\infty < y < +\infty$	$-1 \leq x \leq 1$	$-1 \leq y \leq 1$
18	The area of triangle with $b = 4, c = 2; \alpha = 30^\circ$ is:	2	$\frac{1}{4}$	4	$\frac{1}{2}$
19	$\sin^{-1}\left(-\frac{1}{2}\right)$ equals:	$\frac{\pi}{3}$	$\frac{\pi}{4}$	$-\frac{\pi}{6}$	$-\frac{\pi}{3}$
20	Reference angle of equation $\sin x = \frac{1}{2}$ equals:	$\frac{\pi}{4}$	$\frac{3\pi}{4}$	$\frac{\pi}{3}$	$\frac{\pi}{6}$

Paper Code Number: 2194		2024 (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	If $\alpha + \beta + \gamma = 180^\circ$, then $\cos(\alpha + \beta)$ will be:	$\cos \gamma$	$\sin \gamma$	$-\sin \gamma$	$-\cos \gamma$
2	Range of $y = \cot x$ is:	$-\infty < x < +\infty$	$-\infty < y < +\infty$	$-1 \leq x \leq 1$	$-1 \leq y \leq 1$
3	The area of triangle with $b = 4$, $c = 2$; $\alpha = 30^\circ$ is:	2	$\frac{1}{4}$	4	$\frac{1}{2}$
4	$\sin^{-1}\left(-\frac{1}{2}\right)$ equals:	$\frac{\pi}{3}$	$\frac{\pi}{4}$	$-\frac{\pi}{6}$	$-\frac{\pi}{3}$
5	Reference angle of equation $\sin x = \frac{1}{2}$ equals:	$\frac{\pi}{4}$	$\frac{3\pi}{4}$	$\frac{\pi}{3}$	$\frac{\pi}{6}$
6	If $z = (\sqrt{2}, -\sqrt{5})$, then real part of z^{-1} will be:	$-\frac{\sqrt{2}}{7}$	$\frac{\sqrt{2}}{7}$	$\frac{\sqrt{2}}{5}$	$-\frac{\sqrt{2}}{5}$
7	$\cos \frac{\pi}{2} + i \sin \frac{\pi}{2}$ is a polar form of:	(0, -1)	(-1, 0)	(1, 0)	(0, 1)
8	If $A = \{a, \{b, c\}\}$, then $n P(A)$ equals:	4	3	2	9
9	The converse of $\sim p \rightarrow \sim q$ equals:	$p \rightarrow \sim q$	$q \rightarrow \sim p$	$\sim p \rightarrow \sim q$	$q \rightarrow p$
10	If $a, b \in G$, then $(ab)^{-1}$ will be:	ab^{-1}	$a^{-1}b$	$b^{-1}a^{-1}$	$a^{-1}b^{-1}$
11	$\begin{bmatrix} 1 & 2 \\ 3 & 4 \end{bmatrix}$ is adjoint of matrix:	$\begin{bmatrix} 4 & -2 \\ -3 & -1 \end{bmatrix}$	$\begin{bmatrix} -4 & -2 \\ -3 & 1 \end{bmatrix}$	$\begin{bmatrix} 4 & 2 \\ -3 & 1 \end{bmatrix}$	$\begin{bmatrix} 4 & -2 \\ -3 & 1 \end{bmatrix}$
12	Square matrix A is called Hermitian if $(\bar{A})'$ is:	A	$\bar{A}$	$-A$	$-\bar{A}$
13	The value of $(1 + \omega - \omega^2)(1 - \omega + \omega^2)$ where $\omega^3 = 1$ is:	4ω	4	-4ω	-4
14	If α and β are roots of $x^2 - 3x + 5 = 0$, then $\alpha + \beta$ will be:	3	-3	5	-5
15	An equation which is true for all values of variable is called:	Conditional equation	Equality	Inequality	Identity
16	If a, b, c are in A.P, then $2b$ will be:	$a + b$	$a - b$	$a + c$	$a - c$
17	If $\frac{a^n + b^n}{a^{n-1} + b^{n-1}}$ is +ve G.M between a and b , then n will be:	1	$\frac{1}{2}$	-1	$-\frac{1}{2}$
18	$\frac{n!}{(n-r)!r!}$ will be equal to:	${}^n P_r$	${}^r P_n$	${}^r C_n$	${}^n C_r$
19	The 3 rd term in the expansion of $(1 + 2x)^{-1}$ equals:	x^2	$2x^2$	$4x^2$	$14x^2$
20	$\cos\left(\frac{13\pi}{3}\right)$ equals:	$\frac{1}{2}$	1	$\frac{\sqrt{3}}{2}$	$\frac{1}{\sqrt{2}}$

Paper Code Number: 2196		2024 (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	If a, b, c are in A.P. then $2b$ will be:	$a + b$	$a - b$	$a + c$	$a - c$
2	If $\frac{a^n + b^n}{a^{n-1} + b^{n-1}}$ is +ve G.M between a and b , then n will be:	1	$\frac{1}{2}$	-1	$-\frac{1}{2}$
3	$\frac{n!}{(n-r)! \cdot r!}$ will be equal to:	${}^n P_r$	${}^r P_n$	${}^r C_n$	${}^n C_r$
4	The 3 rd term in the expansion of $(1 + 2x)^{-1}$ equals:	x^2	$2x^2$	$4x^2$	$14x^2$
5	$\cos\left(\frac{13\pi}{3}\right)$ equals:	$\frac{1}{2}$	1	$\frac{\sqrt{3}}{2}$	$\frac{1}{\sqrt{2}}$
6	If $\alpha + \beta + \gamma = 180^\circ$, then $\cos(\alpha + \beta)$ will be:	$\cos \gamma$	$\sin \gamma$	$-\sin \gamma$	$-\cos \gamma$
7	Range of $y = \cot x$ is:	$-\infty < x < +\infty$	$-\infty < y < +\infty$	$-1 \leq x \leq 1$	$-1 \leq y \leq 1$
8	The area of triangle with $b = 4, c = 2; \alpha = 30^\circ$ is:	2	$\frac{1}{4}$	4	$\frac{1}{2}$
9	$\sin^{-1}\left(-\frac{1}{2}\right)$ equals:	$\frac{\pi}{3}$	$\frac{\pi}{4}$	$-\frac{\pi}{6}$	$-\frac{\pi}{3}$
10	Reference angle of equation $\sin x = \frac{1}{2}$ equals:	$\frac{\pi}{4}$	$\frac{3\pi}{4}$	$\frac{\pi}{3}$	$\frac{\pi}{6}$
11	If $z = (\sqrt{2}, -\sqrt{5})$, then real part of z^{-1} will be:	$-\frac{\sqrt{2}}{7}$	$\frac{\sqrt{2}}{7}$	$\frac{\sqrt{2}}{5}$	$-\frac{\sqrt{2}}{5}$
12	$\cos \frac{\pi}{2} + i \sin \frac{\pi}{2}$ is a polar form of:	(0, -1)	(-1, 0)	(1, 0)	(0, 1)
13	If $A = \{a, \{b, c\}\}$, then $n P(A)$ equals:	4	3	2	9
14	The converse of $\sim p \rightarrow \sim q$ equals:	$p \rightarrow \sim q$	$q \rightarrow \sim p$	$\sim p \rightarrow \sim q$	$q \rightarrow p$
15	If $a, b \in G$, then $(ab)^{-1}$ will be:	ab^{-1}	$a^{-1}b$	$b^{-1}a^{-1}$	$a^{-1}b^{-1}$
16	$\begin{bmatrix} 1 & 2 \\ 3 & 4 \end{bmatrix}$ is adjoint of matrix:	$\begin{bmatrix} 4 & -2 \\ -3 & -1 \end{bmatrix}$	$\begin{bmatrix} -4 & -2 \\ -3 & 1 \end{bmatrix}$	$\begin{bmatrix} 4 & 2 \\ -3 & 1 \end{bmatrix}$	$\begin{bmatrix} 4 & -2 \\ -3 & 1 \end{bmatrix}$
17	Square matrix A is called Hermitian if $(\bar{A})'$ is:	A	$\bar{A}$	$-A$	$-\bar{A}$
18	The value of $(1 + \omega - \omega^2)(1 - \omega + \omega^2)$ where $\omega^3 = 1$ is:	4ω	4	-4ω	-4
19	If α and β are roots of $x^2 - 3x + 5 = 0$, then $\alpha + \beta$ will be:	3	-3	5	-5
20	An equation which is true for all values of variable is called:	Conditional equation	Equality	Inequality	Identity

Paper Code Number: 2198		2024 (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	$\begin{bmatrix} 1 & 2 \\ 3 & 4 \end{bmatrix}$ is adjoint of matrix:	$\begin{bmatrix} 4 & -2 \\ -3 & -1 \end{bmatrix}$	$\begin{bmatrix} -4 & -2 \\ -3 & 1 \end{bmatrix}$	$\begin{bmatrix} 4 & 2 \\ -3 & 1 \end{bmatrix}$	$\begin{bmatrix} 4 & -2 \\ -3 & 1 \end{bmatrix}$
2	Square matrix A is called Hermitian if $(\bar{A})^t$ is:	A	$\bar{A}$	$-A$	$-\bar{A}$
3	The value of $(1 + \omega - \omega^2)(1 - \omega + \omega^2)$ where $\omega^3 = 1$ is:	4ω	4	-4ω	-4
4	If α and β are roots of $x^2 - 3x + 5 = 0$, then $\alpha + \beta$ will be:	3	-3	5	-5
5	An equation which is true for all values of variable is called:	Conditional equation	Equality	Inequality	Identity
6	If a, b, c are in A.P, then $2b$ will be:	$a + b$	$a - b$	$a + c$	$a - c$
7	If $\frac{a^n + b^n}{a^{n-1} + b^{n-1}}$ is +ve G.M between a and b , then n will be:	1	$\frac{1}{2}$	-1	$-\frac{1}{2}$
8	$\frac{n!}{(n-r)! \cdot r!}$ will be equal to:	${}^n P_r$	${}^r P_n$	${}^r C_n$	${}^n C_r$
9	The 3 rd term in the expansion of $(1 + 2x)^{-1}$ equals:	x^2	$2x^2$	$4x^2$	$14x^2$
10	$\cos\left(\frac{13\pi}{3}\right)$ equals:	$\frac{1}{2}$	1	$\frac{\sqrt{3}}{2}$	$\frac{1}{\sqrt{2}}$
11	If $\alpha + \beta + \gamma = 180^\circ$, then $\cos(\alpha + \beta)$ will be:	$\cos \gamma$	$\sin \gamma$	$-\sin \gamma$	$-\cos \gamma$
12	Range of $y = \cot x$ is:	$-\infty < x < +\infty$	$-\infty < y < +\infty$	$-1 \leq x \leq 1$	$-1 \leq y \leq 1$
13	The area of triangle with $b = 4, c = 2; \alpha = 30^\circ$ is:	2	$\frac{1}{4}$	4	$\frac{1}{2}$
14	$\sin^{-1}\left(-\frac{1}{2}\right)$ equals:	$\frac{\pi}{3}$	$\frac{\pi}{4}$	$\frac{-\pi}{6}$	$\frac{-\pi}{3}$
15	Reference angle of equation $\sin x = \frac{1}{2}$ equals:	$\frac{\pi}{4}$	$\frac{3\pi}{4}$	$\frac{\pi}{3}$	$\frac{\pi}{6}$
16	If $z = (\sqrt{2}, -\sqrt{5})$, then real part of z^{-1} will be:	$\frac{-\sqrt{2}}{7}$	$\frac{\sqrt{2}}{7}$	$\frac{\sqrt{2}}{5}$	$\frac{-\sqrt{2}}{5}$
17	$\cos \frac{\pi}{2} + i \sin \frac{\pi}{2}$ is a polar form of:	(0, -1)	(-1, 0)	(1, 0)	(0, 1)
18	If $A = \{a, \{b, c\}\}$, then $n P(A)$ equals:	4	3	2	9
19	The converse of $\sim p \rightarrow \sim q$ equals:	$p \rightarrow \sim q$	$q \rightarrow \sim p$	$\sim p \rightarrow \sim q$	$q \rightarrow p$
20	If $a, b \in G$, then $(ab)^{-1}$ will be:	ab^{-1}	$a^{-1}b$	$b^{-1}a^{-1}$	$a^{-1}b^{-1}$

INTERMEDIATE PART-I (11 th Class)		2024 (2 nd -A)	Roll No: _____
MATHEMATICS PAPER-I GROUP-II		SUBJECTIVE	
TIME ALLOWED: 2.30 Hours		MAXIMUM MARKS: 80	
NOTE: Write same question number and its parts number on answer book, as given in the question paper.			
SECTION-I			
8 × 2 = 16			

SECTION-I

8 × 2 = 16

2. Attempt any eight parts.

- | | | | |
|-------|---|--------|--|
| (i) | Show that $(z - \bar{z})^2$ is real number for all $z \in \mathbb{C}$ | (iv) | Express $\frac{i}{1+i}$ in the form of $a + ib$ |
| (ii) | Check closure property in set $\{1, -1\}$ with respect to addition and multiplication. | (vi) | Define Group. |
| (iii) | Find multiplicative inverse of $(\sqrt{2}, -\sqrt{5})$ | (viii) | If $A = \begin{bmatrix} i & 1+i \\ 1 & -i \end{bmatrix}$, show that $A + (\bar{A})^t$ is hermitian. |
| (v) | Write inverse and converse of $\sim p \rightarrow q$ | (x) | Solve $x(x+7) = (2x-1)(x+4)$ |
| (vii) | Find A^{-1} if $A = \begin{bmatrix} 5 & 3 \\ 1 & 1 \end{bmatrix}$ | (xi) | If α, β are roots of $3x^2 - 2x + 4 = 0$, find the value of $\alpha^2 + \beta^2$ |
| (ix) | Find x and y if $\begin{bmatrix} x+3 & 1 \\ -3 & 3y-4 \end{bmatrix} = \begin{bmatrix} y & 1 \\ -3 & 2x \end{bmatrix}$ | (xii) | Evaluate $(1 + \omega - \omega^2)(1 - \omega + \omega^2)$ |

8 × 2 = 16

3. Attempt any eight parts.

- | | | | |
|--------|--|-------|--|
| (i) | Define partial fractions. | (ii) | Resolve $\frac{7x+25}{(x+3)(x+4)}$ into partial fractions. |
| (iii) | Find a_6 of the sequence 1, 3, 12, 60, _____ | (iv) | Which term of the A.P. -2, 4, 10, _____ is 148? |
| (v) | If 5, 8 are two A.Ms between a and b , find a and b . | | |
| (vi) | Show that the reciprocals of the terms of the geometric sequence $a_1, a_1r^2, a_1r^4, \dots$ form another geometric sequence. | | |
| (vii) | Find n when ${}^nP_2 = 30$ | | |
| (viii) | How many signals can be given from 5 flags of different colours, using 3 flags at a time? | | |
| (ix) | If ${}^nC_8 = {}^nC_{12}$, find n | (x) | Prove that $n! > 2^n - 1$ for $n = 4, 5$ |
| (xi) | Use binomial theorem to expand $\left(3a - \frac{x}{3a}\right)^4$ | (xii) | Expand $(1+2x)^{-1}$ upto 4 terms. |

9 × 2 = 18

4. Attempt any nine parts.

- | | | | |
|--------|--|--------|---|
| (i) | Verify $\sin 60^\circ \cos 30^\circ - \cos 60^\circ \sin 30^\circ = \sin 30^\circ$ | (ii) | Prove that $(\sec \theta + \tan \theta)(\sec \theta - \tan \theta) = 1$ |
| (iii) | Prove that $306^\circ + \cos 234^\circ + \cos 162^\circ + \cos 18^\circ = 0$ | (iv) | Without using calculator find $\cos 15^\circ$ |
| (v) | Express $\sin(x+30^\circ) + \sin(x-30^\circ)$ as product. | | |
| (vi) | Find the period of $\cos \frac{x}{6}$ | (vii) | Write the range of $\sec x$ |
| (viii) | Draw the graph of $\cot x$ from 0 to π . | (ix) | In triangle ABC , $a = 93$, $c = 101$, $\beta = 80^\circ$ find α |
| (x) | The area of triangle is 2437. If $a = 79$ and $c = 97$, then find β | (xi) | Show that $r_3 = s \tan \frac{\gamma}{2}$ |
| (xii) | Find the value of $\tan\left(\cos^{-1} \frac{\sqrt{3}}{2}\right)$ | (xiii) | Solve the equation $\sin x = \frac{1}{2}$ in $[0, 2\pi]$ |

SECTION-II

3 × 10 = 30

NOTE: Attempt any three questions.

- | | | | |
|-------|---|-----|--|
| 5.(a) | Show that $\begin{vmatrix} a & b+c & a+b \\ b & c+a & b+c \\ c & a+b & c+a \end{vmatrix} = a^3 + b^3 + c^3 - 3abc$ | (b) | Solve the equation $2x^4 - 3x^3 - x^2 - 3x + 2 = 0$ |
| 6.(a) | Resolve into partial fractions $\frac{2x+1}{(x+3)(x-1)(x+2)^2}$ | (b) | If $y = 1 + 2x + 4x^2 + 8x^3 + \dots$ show that $x = \frac{y-1}{2y}$ |
| 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) | Use binomial theorem to show that $1 + \frac{1}{4} + \frac{1.3}{4.8} + \frac{1.3.5}{4.8.12} + \dots = \sqrt{2}$ | | |
| 8.(a) | Reduce $\cos^4 \theta$ to an expression involving only function of multiples of θ , raised to the first power. | | |
| (b) | Show that $r_1 = 4R \sin \frac{\alpha}{2} \cos \frac{\beta}{2} \cos \frac{\gamma}{2}$ | | |
| 9.(a) | Prove that $\theta = \frac{\ell}{r}$ | (b) | Prove that $2 \tan^{-1} \frac{1}{3} + \tan^{-1} \frac{1}{7} = \frac{\pi}{4}$ |