

ریاضی (سائنس گروپ) وقت: 2:10 گھنٹے پرکھ: II پرکھ: 60		1st A 225) سیکولری سکول پارسٹ II (10th) موضوع: I پرکھ: 60
Time: 2:10 Hours Marks: 60	Paper: II First Group	SUBJECTIVE پرکھ: 60

Note: Section I is compulsory. Attempt THREE (3) questions from section II, however, question No. NINE (9) is compulsory.

نوٹ: حصہ اول لازمی ہے۔ محض درم میں سے تین (3) سوالات حل کیجیے۔

2 - کوئی سے چھ (6) سوالات کے مختصر جواب دیجیے اصل کیجیے۔

i - خاص (9) درجہ درجی مساوات کی تعریف کیجیے۔

ii - جزریہ تجزیہ حل کیجیے: $3y^2 = y(y - 5)$

iii - Write down any two names of the methods for solving a quadratic equation.

iv - Find the nature of roots of the quadratic equation:

v - Evaluate: $16x^2 - 24x + 9 = 0$

vi - Write the quadratic equation having roots 2, -6

vii - Define ratio and give one example.

viii - Find fourth proportional to $p^3 + q^3$, $p^3 - q^3$, $p^2 - pq + q^2$

ix - If y varies inversely as x and y = 7, when x = 2, find y when x = 126

3 - Write short answers / solve any SIX (6) questions: (2x6 = 12)

i - Resolve into partial fractions: $\frac{3x-1}{x^2-1}$

ii - Define a rational fraction and give an example.

iii - What is meant by union of two sets?

iv - Find the sets X and Y if $X \times Y = \{(a, a), (b, a), (c, a), (d, a)\}$

v - What is meant by intersection of two sets?

vi - If $X = \{a, b, c\}$ and $Y = \{d, e\}$ then find $X \times Y$

vii - What is meant by class limits?

viii - Find the arithmetic mean of the data: 45, 60, 74, 58, 65, 63, 49

ix - Find the geometric mean of observations 2, 4, 8

4 - Write short answers / solve any SIX (6) questions: (2x6 = 12)

i - Convert $\frac{7\pi}{12}$ into degree.

ii - Find $\angle$ when: $\theta = \pi$ radian $r = 4.9$ cm

iii - Prove that: $\frac{\sin^2 \theta}{\cos \theta} + \cos \theta = \sec \theta$

iv - How many minutes are there in two right angles?

v - Define chord of the circle.

vi - Define secant of a circle.

vii - Define circumangle.

viii - Define regular polygon.

ix - Construct a circle of radius 2 cm.

(دیکھیے)

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Mathematics (Science Group)		(10 th) II سیکنڈری سکول پارٹ (1st A 225-I)		ریاضی (سائنس گروپ)	
Time: 20 Minutes	Paper: II	OBJECTIVE معروضی		پرچہ: II	وقت: 20 منٹ
Marks: 15	Second Group	Code: 7192		دوسرا گروپ	مارکس: 15
You have four choices for each objective type question as A, B, C and D. The choice which you think is correct, fill that circle in front of relevant question number. Use marker or pen to fill in the circles. Cutting or filling of two or more circles will result zero mark in that question.			ہر سوال کے چار ممکنہ جوابات A، B، C اور D دیئے گئے ہیں۔ جوابی کاپی پر ہر سوال کے سامنے دیئے گئے دائروں میں سے درست جواب کے مطابق متعلقہ دائرہ کو مار کر یا چین سے بھر دیجیے۔ ایک سے زیادہ دائروں کو پُر کرنے یا کاٹ کر پُر کرنے کی صورت میں مذکورہ جواب غلط تصور ہوگا۔		
D	C	B	A	Questions / سوالات	سوال نمبر
5	2	3	4	دو درجی معیاری مساوات $ax^2 + bx + c = 0$ میں رقموں کی تعداد ہے The number of terms in a standard quadratic equation $ax^2 + bx + c = 0$ is	1
{ 2 }	{ ± 2 }	{ 4 }	{ ± 4 }	مساوات $4x^2 - 16 = 0$ کا حل سیٹ ہے The solution set of equation $4x^2 - 16 = 0$ is	2
$\alpha + \beta$	$(\alpha + \beta)^2 - 2\alpha\beta$	$\frac{1}{\alpha^2} + \frac{1}{\beta^2}$	$\alpha^2 - \beta^2$	$\alpha^2 + \beta^2$ برابر ہے $\alpha^2 + \beta^2$ is equal to	3
3	-1	1	0	اکائی کے جذور المکعب کا حاصل ضرب ہے Product of cube roots of unity is	4
$\frac{a-b}{x} = \frac{x-y}{y}$	$\frac{a+b}{b} = \frac{x+y}{y}$	$\frac{a}{b} = \frac{x}{y}$	$\frac{a}{x} = \frac{b}{y}$	اگر $a : b = x : y$ ہو تو ابدال نسبت ہے If $a : b = x : y$, then alternando property is	5
$\frac{y^2}{x^4}$	$\frac{y^4}{x^2}$	x^2y^2	$\frac{y^2}{x^2}$	x^2 اور y^2 کا تیسرا تناسب ہے The third proportional of x^2 and y^2 is	6
ایک قیمت One value of x	دو قیمتوں Two values of x	تین قیمتوں Three values of x	تمام قیمتوں All values of x	مماثلت $(5x + 4)^2 = 25x^2 + 40x + 16$ کی x کے لیے درست ہے۔ The identity $(5x + 4)^2 = 25x^2 + 40x + 16$ is true for	7
{ 1, 2, 3, 4 }	{ 1, 3, 4 }	{ 3, 2, 4 }	{ 1, 2, 4 }	اگر $R = \{(1, 3), (2, 2), (3, 1), (4, 4)\}$ ہو تو R کی رینج کیا ہوگی؟ The range of $R = \{(1, 3), (2, 2), (3, 1), (4, 4)\}$ is	8
4	6	8	9	{ 1, 2, 3 } کے پاور سیٹ کے ارکان کی تعداد ہے The number of elements in power set { 1, 2, 3 } is	9
جگہ Place	منبع / ماخذ Origin	نسبت Ratio	قیمت Value	حسابی اوسط _____ تبدیل کرنے سے اثر انداز ہوتا ہے۔ Mean is affected by change in _____.	10
Tan θ	0	1	-1	$\operatorname{cosec}^2 \theta - \cot^2 \theta =$ _____ $\operatorname{cosec}^2 \theta - \cot^2 \theta =$ _____	11
ایک قوس An arc	ایک وتر Chord	قطر Diameter	رداس Radius	دائرے کے کسی نقطے کا اس کے مرکز تک کا فاصلہ کہلاتا ہے۔ The distance of any point of the circle to its centre is called	12
دائرے کا secant Secant of a circle	دائرے کا tangent Tangent of a circle	دائرے کا cosine Cosine of a circle	دائرے کا sine Sine of a circle	ایک خط جس کے دائرے کے ساتھ دو نقاط مشترک ہوں، اسے کہتے ہیں A line which has two points in common with a circle is called	13
4 سم 4 cm	3 سم 3 cm	2 سم 2 cm	1 سم 1 cm	ایک 4 سم لمبائی والا وتر مرکز پر 60° کا زاویہ بناتا ہے۔ دائرے کا رداس _____ ہوگا۔ A 4cm long chord subtends a central angle of 60° . The radial segment of this circle is	14
سیکٹر Sector	سرحد Boundary	قطعہ Segment	وتر Chord	دائرے کا محیط کہلاتا ہے The circumference of a circle is called	15

Mathematics (Science Group)		1st A 225 (1st A 225) سیکنڈری سکول پارسٹ II (10 th)	پیشہ: II
Time: 2:10 Hours	Paper: II	SUBJECTIVE	وقت: 2:10 گھنٹے
Marks: 60	Second Group		دوسرا گروپ

Note: Section I is compulsory. Attempt THREE (3) questions from section II, however, question No. NINE (9) is compulsory.

حصہ اول - I Section

2 - Write short answers / solve any SIX (6) questions:

(2x6 = 12)

- Solve by factorization: $4 - 17x^2 = 32x$
 - Write $\frac{(x-3)(x+7)}{7} = -1$ in standard form.
 - Define quadratic equation and give an example.
 - Find the discriminant of $x^2 - 3x + 3 = 0$
 - Evaluate: $\omega^{-13} + \omega^{-17}$
 - Write quadratic equation having roots: $-i + 1$, $i + 1$
 - State theorem of componendo - dividendo.
 - Find mean proportional to 25 and 49
 - Find fourth proportional to $4x^4$, $2x^3$, $18x^5$
- 3 - Write short answers / solve any SIX (6) questions: (2x6 = 12)
- Define fraction and give one example.
 - Resolve into partial fractions: $\frac{x-5}{x^2+2x-3}$
 - Write down De Morgan's Laws.
 - If $U = \{4, 5, 6, 7, \dots, 25\}$, $X = \{11, 13, 17, 19, 23\}$ and $Y = \{4, 5, 6, 7, \dots, 17\}$, then find $(X \cap Y)'$
 - Find a and b if $(a - 2, 2b + 1) = (3a + 1, b - 3)$
 - Define Onto function.
 - What is Histogram?
 - Write down any two properties of arithmetic mean.
 - Find the median for the frequency distribution:

X	Frequency
1	3
2	8
3	5
4	3
5	1

نوٹ: حصہ اول لازمی ہے۔ حقدوم میں سے تینہ (3) سوالات حل کیجئے، چہم سوال نمبر (9) لازمی ہے۔

2 - کوئی سے چھ (6) سوالات کے مختصر جواب دیجئے، اصل کیجئے۔

- Solve by factorization: $4 - 17x^2 = 32x$
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4 - کوئی سے چھ (6) سوالات کے مختصر جواب دیجئے، اصل کیجئے۔

- What is meant by a degree?
- Define coterminal angles. Give an example.
- Find the distance travelled by a cyclist moving in a circle of radius 15m, if he makes 3 revolutions.
- Verify that: $\cot\theta \sec\theta = \csc\theta$
- Differentiate between acute angle and obtuse angle.
- Define central angle.
- Define tangent of a circle.

(درج کیجئے)

- 2 -

viii - The length of the side of an equilateral triangle is 9.5cm, What is its perimeter?

ix - Draw a tangent at any point on the circumference of a circle.

حصہ دوم - II Section

5 - (a) Solve the equation: $2x^4 + x^3 - 6x^2 + x + 2 = 0$

(b) Solve by using synthetic division, if '3' and '-4' are the roots of the equation $x^4 + 2x^3 - 13x^2 - 14x + 24 = 0$

6 - (a) Solve by using Componendo - Dividendo Theorem: $\frac{(x+5)^3 - (x-3)^3}{(x+5)^3 + (x-3)^3} = \frac{13}{14}$

(b) Resolve $\frac{7x+4}{(3x+2)(x+1)^2}$ into partial fractions.

7 - (a) If $U = \{x | x \in N \wedge 3 \leq x \leq 25\}$, $X = \{x | x \text{ is prime } \wedge 7 < x \leq 23\}$, $Y = \{x | x \in W \wedge 4 < x \leq 17\}$ then find the value of $X' \cap Y'$

(b) Find the standard deviation of the data: 40, 60, 70, 80, 90

8 - (a) The base of a rectangle is 25 feet and the height of the rectangle is 13 feet. Find the angle that the diagonal of the rectangle makes with the base.

(b) Circumscribe a circle about an equilateral triangle ABC with each side of length 4 cm.

9 - Prove that one and only one circle can pass through three non-collinear points.

OR

Prove that any two angles in the same segment of a circle are equal.

112-1st A 225-88500(#)