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DPM CLASSES

6th to 10th (Math's & Science), 11th & 12th (Physics, Chemistry, Math's)

EXAM - PAPER (CBSE/NCERT)

PRACTICE SET -2

SESSION -2024-25

CLASS - 10th

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Add: Block -B, Near Glory Villa, 60 feet Road (Nearest land mark Scindia Statue), Shatabdipuram, Gwalior

Time : 3:00hr Test paper - 2 (math's) mm:

Q. 1. Choose the correct option and write it :

(i) HCF of (91, 21) is :

(a) 91 (b) 21
(c) 13 (d) 12

(ii) The pair of equation $x+2y+5=0$ and $-3x-6y+1=0$ have solution :

(a) a unique solution (b) has no solution
(c) Infinity many solutions (d) two solutions

(iii) The sum of the zeroes of the quadratic polynomial ax^2+bx+c will be :

(a) $\frac{b}{a}$ (b) $\frac{a}{b}$
(c) $-\frac{b}{a}$ (d) $-\frac{c}{a}$

(iv) The discriminant of the quadratic equation $x^2-4x+4=0$ is :

(a) 4 (b) 2
(c) 0 (d) 1

(v) Number of tangents drawn at a point on the circle :

(a) 1 (b) 2 (c) 3 (d) 0

(vi) The distance between the point $(0,5)$ and $(-5,0)$ is:

(a) 5 (b) $5\sqrt{2}$

(c) $2\sqrt{5}$ (d) 2

Q.2. Fill in the blanks:

(i) HCF $(a,b) \times$ Lcm (a,b) = ...

(ii) In the equation $x+y=8$ if $x=3$, then y = ...

(iii) A polynomial of degree 3 is called a ... polynomial.

(iv) If a is the first term and d is common difference, then the n^{th} term will be .....

(v) Each Square are .....

(vi) A line intersecting a circle in two points is called .....

(vii) Formula of area of the circle of radius r is ....

Q.3. Write the answer in one word/sentence of each:

(i) If $a=bq$, then what is the relation b/w a and b ?

(ii) If a, b and c are real numbers and $a \neq 0$, then the quadratic polynomial is which form?

(iii) Write the name of right angled triangle theorem.

(iv) Write the distance of the point (x, y) from the origin.

(v) What is the class of maximum frequency is called?

(vi) What will be the probability of an impossible event?

(vii) What will be the value of $P(E) + P(\bar{E})$?

Q. 4. Match the columns:

(i) $\sec(90^\circ - \theta)$	(a) 1
(ii) $\cos\theta$	(b) 0
(iii) $\sin 0^\circ$	(c) $\frac{1}{\sec\theta}$
(iv) $\cos 0^\circ$	(d) $\operatorname{cosec}\theta$
(v) $\sqrt{1+\tan^2\theta}$	(e) $\sin\theta$
(vi) $\sqrt{1-\cos^2\theta}$	(f) $\sec\theta$
	(g) $\sec^2\theta$.

Q.5. Write true/False in the following :-

(i) The value of x in $x(x-1)=0$ are zero and one.

(ii) 10^{th} term of the A.P. 10, 7, 4, ... is -17.

(iii) Area of similar triangles are always equal.

(iv) The volume of cone is $\pi r^2 h$.

(v) The volume of hemisphere is $\frac{4}{3}\pi r^3$

(vi) 3 median = mode + 2 mean.

Q.6. Show that every positive even integer is of the form $2q$ and that every positive odd integer of the form $2q+1$, where q is some integer.

Or

Find the Lcm of 6, 72 and 120 using the prime factorisation method

Q.7. Find the zeroes of the quadratic polynomial $6x^2-3-7x$

Or

Find the quadratic polynomial, the sum and product of whose zeroes are 1, 1. respectively.

Q.8. For the AP $-5, -1, 3, 7 \ldots$ write the first term a and common difference d.

or

Which term of the AP $21, 18, 15 \ldots$ is -81 ?

Q.9. Two polygons of the same number of sides are similar if (i) their corresponding angles are ..... and (ii) their corresponding sides are ..... (equal/proportional).

Q.10. Find the coordinates of the point which divides the line segment joining the points $(-1, 7)$ and $(4, -3)$ in the ratio 2:3.

or

If the points A $(6, 1)$, B $(8, 2)$, C $(9, 4)$ and D $(P, 3)$ are the vertex of a parallelogram, taken in order, find the value of P.

Q.11. Find the area of triangle ABC formed by the A $(5, 2)$, B $(4, 7)$ and C $(7, -4)$

or

Find the value of K if the points A $(2, 3)$, B $(4, K)$ and C $(6, -3)$ are collinear.

Q.12. If $\sin A = \frac{3}{4}$, then find the value of $\cos A$ and $\tan A$.

Or

In a right angled triangle ABC, right angled at B, if $\tan A = 1$, then verify that $2 \sin A \cdot \cos A = 1$.

Q.13. A chord of a circle of radius 10 cm subtends a right angle at the centre. Find the area of the corresponding minor segment ($\pi = 3.14$)

Or

In a circle of radius 21 cm an arc subtends an angle 60° at the centre. Find the length of the arc

Q.14. Define impossible event

Or

Define elementary event.

Q.15 One card is drawn from a well-shuffled deck of 52 cards. Calculate the probability that the card will not be an ace.

Or

If $P(E) = 0.06$, what is the probability of 'Not E'?

Q.16. Find the roots of the equation $2x^2+x-6=0$ by factorisation.

or

Find the nature of roots of the quadratic equation $2x^2-3x+5=0$

Q.17. Which term of the AP 3, 8, 13, 18 ... is 78?

or

If the 3rd and the 9th terms of an AP are 4 and -8 respectively, which term of this AP is zero?

Q.18. If a line intersect sides AB and AC of a ΔABC at D and E respectively and is parallel to BC, then prove that $\frac{AD}{AB} = \frac{AE}{AC}$

or

Prove that, if a line is drawn parallel to one side of a triangle to intersect the other two sides in distinct points, then the other two sides are divided in the same ratio.

Q.19. Prove that if two Cocentric circles, the chord of the larger circle, which touches the smaller circle, is bisected at the point of contact.

or

Prove that the tangent at any point of a circle is perpendicular to the radius through the point of contact.

Q.20. Solve the following pair of linear equations by the elimination method:

$3x+y=10$ and $2x+2y=12$

or

Solve the following pair of linear equations by the substitution method:

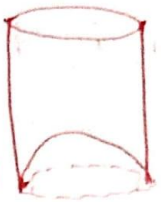
$x+y=5$ and $2x-3y=4$.

Q.21. Construct a triangle of side 4cm, 5cm and 6cm and then a triangle similar to it whose sides are $\frac{2}{3}$ of the corresponding sides of the first triangle.

or

Construct a triangle similar to a given triangle ABC with its sides equal to $\frac{3}{4}$ of the corresponding sides of the triangle ABC.

Q. 22. A juice seller was serving his customers using glasses as shown in figure.



The inner diameter of the cylindrical glass was 5cm but the bottom of the glass had a hemisphere raised portion which reduced the capacity of the glass. If the height of a glass was 10cm, find the apparent capacity of the glass and its actual capacity. ($\pi = 3.14$)

OR

A cone of height 24 cm and radius of base 6 cm is made up of modelling clay. A child reshapes it in the form of a sphere. Find radius of the sphere.

Q. 23. Consider the following distribution of daily wages of 50 workers of a factory. Find the mean daily wages of the workers of the factory by using an appropriate method:

Daily Wages	500-520	520-540	540-560	560-580	580-600
No. of workers	12	14	8	6	10

OR

The distribution below shows the number of wickets taken by bowlers in one-day cricket matches. Find the mean number of wickets by choosing a suitable method :

No. of wickets	20-60	60-100	100-150	150-250	250-350	350-450
No. of bowlers	7	5	16	12	2	3

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