SET–1

Revision Test–2018–19

Class–X

Subject : Mathematics

Time : 3 Hrs. Full Marks : 90

I. Choose the correct answer for each of the following questions : 1x6=6

i) The ratio of Simple interest and compound interest on Rs. 100 for 2 yrs at 10% interest p.a will be

a) 10:11 (b) 11:10 (c) 20:21 (d) 21:20

ii) For a quadratic equation $ax^2+bx+c=0$ $(a \neq 0)$ $\left(\frac{c}{a}\right)$ will be

a) Difference of roots (b) Sum of roots

c) Product of roots (d) None

iii) The ratio of the volumes of two cubes be 1:27, then the ratio of the total surface area of the two cubes will be

a) 1:3 (b) 1:8 (c) 1:9 (d) 1:18

iv) AB is the diameter of a circles with centre 0. If in a cyclic Quadrilateral ABCD, AB || DC, and $\angle BAC = 25$; then $\angle DAC$ is equal to

a) 40 (b) 50^0 (c) 60^0 (d) 70^0

v) If $3x=\text{Cosec}\,\alpha$ and $\frac{3}{x}=\text{Cot}\,\alpha$ the value of $\left(x^2-\frac{1}{x^2}\right)$ is

a) $\frac{1}{27}$ (b) $1/81$ (c) $1/3$ (d) $1/9$

vi) The median of the numbers 94, 33, 86, 68, 69, 32, 48, 80, 70, will be

a) 68 (b) 69 (c) 70 (d) 71

2. Fill in the blanks (any five) 1x5=5

i) The simple interest on Rs. 500 for 5 yrs at the rate of 5% is Rs. _____

ii) If the opposite angle of a quadrilateral be supplementary, then its four vertices will be _____

iii) $\frac{1}{\cos ec^2 68} + \frac{1}{\cos ec^2 22} =$ _____

iv) If $5x=4y=6z$, then x:y:z = _____

v) If the total surface area of a cube is 216 sq.cm, then the length of its diagonal will be ____ cm

vi) The value of

Cos1°×Cos2°×Cos3°×Cos4° ___.x Cos 90°= ___

3. State whether True or False (any five) 1x5=5

i) One and only one circle can be drawn through three non collineor points.

ii) $\sqrt{\pi}$ is not a Surd

iii) The ratio of volumes of a sphere and a cube Circumscribing the sphere is π:6

iv) If $0^\circ < \theta < 90^\circ$ *and* $Sec\theta = \frac{x}{y}$ *then* $x > y$

v) Ogive is always a straight line

vi) The value of $3\sqrt{48} - 4\sqrt{75} + \sqrt{192}$ is 0

4. Answer any ten Questions : 2x10=20

i) Find the simple interest on Rs. 64000 at $16\frac{2}{3}\%$ per annum for 9 months.

ii) If $(3x-2y):(3x+2y)=4:5$ *find* $x:y$

iii) In a joint business A and B invested their capital in the ratio of 3:2. If 5% of the total profit goes to charity and A's profit is Rs. 85[c-], find total profit.

iv) If $3a^2=6a-5$ and $3b^2=6b-5$, find the value of a+b where $a \neq b$

v) If the $ui=\frac{xi-25}{10}$, $\sum fiui=20$ *and* $\sum fi=100$ then find the value of $\overline{X}$. (symbols have usual meaning)

vi) If $2x\cos\theta=9$, $4\tan\theta=y$ then find $\frac{4x^2}{81}-\frac{y^2}{16}$

vii) How much canvas will be required to make a conical tent 8m in height and 12m in diameter?

viii) If $\sin\theta+\cos\theta=1$ find $\sin\theta \times \cos\theta$

ix) If $x \alpha y^2$ *and* $y=2a$ when x=a, find the relation between x and y

x) If $x=3+2\sqrt{2}$ *then find* $x+\frac{1}{x}$

xi) '0' is the centre of a circle. AB is diameter, 'P' is any point on its circumference $\angle POA=120^0$. Find the $\angle BPO$

xii) $\cot\theta \times \text{ten}4\theta=1$. find $\sin 5\theta$

xiii) Find the ratio of the volume of a Cone and a cylinder when they have in Same base and Same height.

5. Answer any one question : 1x5=5

i) A starts a business with Rs. 2000. B joins him after 3 months with Rs. 4000. C puts a Sum of

Rs. 10,000 for last 2 months only. At the end of the year the business gives a profit of Rs. 5600. Find the share of Each.

ii) In how many years will Rs. 100000 when compounded year by at the rate of 10% per annum amount to 1,33,100?

6. Solve any one : 1x3=3

i) $\frac{a}{x-b}+\frac{b}{x-a}=2\left[x\neq b,a\right]$

ii) A man travelled 84 km by cycle and observed that if he would be cycling with the speed of 5 km/hr more. then the time taken to complete the journey is reduced by 5 hrs. Calculate the speed of his journey in km/hr

7. Answer any one : 1x3=3

i) If $x=\frac{\sqrt{3}+1}{\sqrt{3}-1}$ *and* $y=\frac{\sqrt{3}-1}{\sqrt{3}+1}$ find $\frac{x^2}{y}+\frac{y^2}{x}$

ii) If $a \alpha b$ and $b \alpha c$ then prove that $a^3+b^3+c^3 \alpha 5abc$

8. Answer any one : 1x3=3

i) $\frac{a^2-bc}{a^2+bc}+\frac{b^2-ca}{b^2+ca}+\frac{c^2-ab}{c^2+ab}=1$ then show that

$$\frac{a^2}{a^2+bc}+\frac{b^2}{b^2+ca}+\frac{c^2}{c^2+ab}=2$$

ii) If a, b, c and d be in continued proportion prove that.

$$(b-c)^2+(c-a)^2+(b-d)^2=(a-d)^2$$

9. Answer any one : 1x5=5

i) Prove that the angle at the centre of the circle is double the angle on the remaining part of circumferance standing on same are.

ii) Prove that the area of the square on the hypot-enuse of a right angled triangle is equal to the sum of the area of the squares on other two sides.

10. Answer any one question : 1x3=3

i) ABCD is a rectangle and 'O' is any point with in it. prove that, $OA^2+OC^2=OB^2+OD^2$

ii) Prove that an exterior angle of a cyclic quadriteral is aqual to opposite interior angle.

11. Answer any one : 1x5=5

i) Find glometrically the value of $\sqrt{21}$

ii) Draw a triangle with the sides 6 cm, 8 cm and 10 cm. Now constracts a circum circle.

12. Answer any two questions : 2x3=6

i) Show that

$\text{Cosec}^2 22^0 . \text{Cot}^2 68^0 = \text{Sin}^2 22^0+\text{Sin}^2 68^0+\text{Cot}^2 68^0$.

ii) Show that $\frac{\tan\theta+\sec\theta-1}{\tan\theta-\sec\theta+1}=\frac{1+\sin\theta}{\cos\theta}$

iii) If $\sin\theta + \sin^2\theta = 1$, Prove $\cos^2\theta + \cos^4\theta = 1$

13. Answer any one : 1x5=5

a) From a point on the roof of a house 10m high it is observed that the angles of depression of the top and foot of a lamp post are 30° and 60° respectively. What is the height of the lamp post.

b) If the Sun's altitude changes from 60° to 30° the shadow of a tower increases by 90m. Calculate height of the tree.

14. Answer any two : 2x4=8

a) Sides of a wooden cube is 14cm. A maximum size of sphare cut out from it. Find the volume of wood lost.

b) Three solid spheres of radius 3cm, 4 cm and 5cm are melted and a big sphere is made find its radius.

c) The height and slant height of a right circular conc are 20 cm and 25 cm respectively if a cyclinder has same volume of the cone and height of the cylender is 25 cm then calculate the diameter of cylinder.

15. Answer any two questions : 4x2=8

a) Find mode from following data

Class	45–54	55–64	65–74	75–84	85–94	95–104
Frequency	8	13	19	32	12	6

b) Find medium of following data

Class	300–309	310–319	320–329	330–339	340–349	350–359
Frequency	9	20	24	38	48	11

c) From the frequency distribution table given below, draw a greater than ogive

Class	10–20	20–30	30–40	40–50	50–60	60–70	7–80	80–90
Frequency	50	80	20	10	20	10	20	10

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