FIRST REVISION TEST-2020(MODEL)
MATHEMATICS

CLASS: X standard **Marks : 100**
Time : 3 hours

PART-I [Marks 14]

Answer all the 14 questions **14x1=14**

1. If the ordered of pairs (a+2, 4) and (5,2a+b)are equal then (a, b) is
(a) (2.-2) (b) (5,1) (c) (2,3) (d) (3,-2)

2. f(x) $(x+1)^3 - (x-1)^3$represents a function which is
(a) Linear (b) cubic (c) reciprocal (d) quadratic

3. $7^{4k} \equiv$_____(mod 100)
(a) 1 (b) 2 (c) 3 (d) 4

4. Given $F_1=1$, $F_2=3$ and $f_n = F_{n-1} + F_{n-2}$ then F_5 is
(a) 3 (b) 5 (c) 8 (d) 11

5. A system of three linear equations in three variables is inconsistent if their planes
(a) Intersect only at a point (b) intersect in a line
(c) Coincides with each other (d) do not intersect

6. Graph of a linear polynomial is a
(a) Straight line (b) circle (c) parabola (d) hyperbola

7. A diagonal matrix in which all the leading diagonal elements are equal is called
(a)unit matrix (b) unit matrix (c) scalar matrix (d) diagonal matrix

8. Angle of depression and angle of elevation are equal become they are
(a) Acute angles (b) corresponding angles (c) alternate angles (d) obtuse angles

9. The inclination of x axis and every line parallel to x axis is
(a) 0^o (b) 90^o (c) 45^o (d) 180^o

10. $\tan\theta \operatorname{cosec}^2\theta - \tan\theta$ is equal to

(a) $\sec\theta$ (b) $\cot^2\theta$ (c) $\sin\theta$ (d) $\cos\theta$

11. The total surface area of a hemi-sphere is how much times the square of its radius

(a) π (b) 4π (c) 3π (d) 2π

12. Variance of first 20 natural numbers is

(a) 32.25 (b) 44.25 (c) 33.25 (d) 30.

13. If a letter is chosen at random from the English alphabets $\{a,b,...,z\}$, then the probability that the letter chosen precedes x

(a) 12/ 13 (b) 1 /13 (c) 23/ 26 (d) 3 /26

14. The probability of sure event is

(a) 1 (b) 2 (c)0 (d) none of these

PARTS-II [MARKS: 20]

Answer all the questions [Question number 28 is compulsory] 10x2=20

15. LetA={1,2,3}andB={x|xisaprimenumberlessthan10}.FindAxB and B xA.

16.Iff(x)=x^2-1andg(x)=x–2,findaifgof(a)=1

17. What is the time 100 hours after 7a.m.?

18. If 3 +k, 18 -k, 5+ k are in A.P. then find k.

19. InaG.P.729,243,81……findt$_7$

20. Find the GCD of m^2-3m-18, m^2+5m+6

21.Determine the nature of roots for the quadratic equations $2x^2$-2x+9=0

22. If A= $\begin{bmatrix} 0 & 4 & 9 \\ 8 & 3 & 7 \end{bmatrix}$ and B = $\begin{bmatrix} 7 & 3 & 8 \\ 1 & 4 & 9 \end{bmatrix}$ Find the value of 3A-9B

23.QA and PB are perpendiculars to AB. If AO = 10 cm, BO= 6 cm and PB= 9 cm. Find AQ.

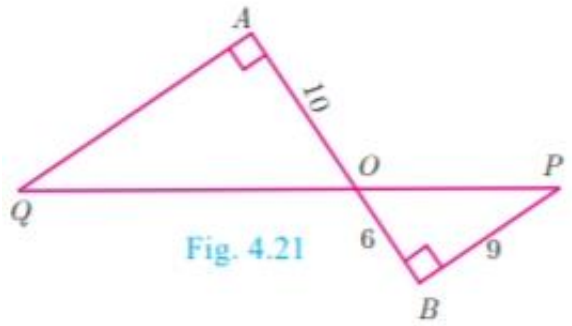

Fig. 4.21

24.Find the equation of a line passing through the point (3,-4) and having slope -5/7

25. Prove that $\sqrt{\frac{1+\cos\theta}{1-\cos\theta}} = \operatorname{cosec}\theta+\cot\theta$

26. The radius of a spherical balloon increases from 12 cm to 16 cm as air being pumped into it. Find the ratio of the surface area of the balloons in the two cases.

27. The range of a set of data is 13.67 and the largest value is 70.08. Find the smallest value.

28. The volume of a solid right circular cone is 11088 cm^3. If its height is 24 cm then find the radius of the cone

PARTS-III [MARKS: 50]

Answer all the questions [Question number 42 is compulsory] 10x5=50

29. LetA={x€N|1<x<4},B={x€W|0≤x<2}andC={x€N|x<3}then verifythat Ax(BUC)=(Ax B)U(Ax C)

30. Find x if gff(x) = fgg(x), given f (x) = 3 x+1 and g (x) =x+3.

31.Thesumoffirstn,2nand3ntermsofanA.P.areS1,S2andS3respectively.Provethat S3=3(S2-S1)

32.Findthesumtontermsoftheseries8+88+888+……nterms

33. Find the values of *a* and *b* if the polynomials are perfect squares $9x^4+12x^3+28x^2+ax+b$

34.If $A = \begin{bmatrix} 3 & 1 \\ -1 & 2 \end{bmatrix}$ show that $A^2-5A+7I_2=0$

35. State and prove pythagoras theorem.

36. Find the equation of the perpendicular bisector of the line joining the points *A* (-4, 2) and *B* (6,-4)

37.An aeroplane at an altitude of 1800 m finds that two boats are sailing towards it in the same direction. The angles of depression of the boats as observed from the aeroplane are 60° and 30° respectively. Find the distance between the two boats

38. A container open at the top is in the form of a frustum of a cone of height 16 cm with radii of its lower and upper ends are 8 cm and 20 cm respectively. Find the cost of milk which can completely fill a container at the rate of Rs.40 per litre.

39. A right circular cylindrical container of base radius 6 cm and height 15 cm is full of ice cream. The ice cream is to be filled in cones of height 9 cm and base radius 3 cm, having a hemispherical cap. Find the number of cones needed to empty the container.

40. The marks scored by the students in a slip test are given below.

x	4	6	8	10	12
f	7	3	5	9	5

find the standard deviation of their marks

41. Two dice are rolled once. Find the probability of getting an even number on the first die or a total of face sum 8

42.If α, β*are* the roots of the equation$5x^2-px+1=0$ and $\alpha-\beta=1$, then find p.

PARTS-IV [MARKS: 16]

Answer both questions **2x8=16**

43. a) Draw a tangent to the circle from the point P having radius 3.5cm and centre at O. Point P is at a distance 7.2cm from the centre.

(Or)

b) Construct a ΔPQRwhich the base PQ=4.5cm, $\angle R = 35^o$ *and*the median fromR to RG is 6cm.

44. a)Discuss the nature of solutions of the quadratic equations $x^2-9x+20=0$

(Or)

b)Draw the graph of $y=x^2-5x-6$ and hence use it to solve $x^2-5x-14=0$

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