I- PERIODIC TEST : 2021-22
CLASS - IX (CBSE)

Time : 2 hrs.                    **MATHEMATICS**                    M.M.: 50

*General Instructions :*
*i)      All questions are compulsory.*
*ii)     The question paper comprises four sections A, B, C and D.*
*iii)    Section A contains question numbers 1 to 5 of 1 mark each.*
*iv)     Section B contains question numbers 6 to 10 of 2 marks each.*
*v)      Section C contains question numbers 11 to 15 of 3 marks each.*
*vi)     Section D contains question numbers 16 to 20 of 4 marks each.*
*vii)    Internal choice is also given in some questions.*

### SECTION – A     [1×5=5]

Q.1.   In which quadrant the coordinates of point (-2, 3) and (4, -6) lie ?

Q.2.   In a cricket match, a batsman hits a boundary 6 times out of 50 balls he plays what is the probability that he does not hit boundary ?

Q.3.   Find the measure of the supplement of an angle 63º .

Q.4.   Simplify   $\left(6-\sqrt{6}\right)\left(6+\sqrt{6}\right)$

Q.5.   If the probability of two friends not having the same birthday is 0.975, what is the probability that they have same birthday ?

### SECTION – B     [2×5=10]

Q.6.   Simplify :   $(256)^{-\frac{3}{4}}$

Q.7.   Find the value of k, if x=2, y=1 is a solution of the equation -2x+3y=k

Q.8.   Prove that sum of the angles of a triangle is 180º.

Q.9.   If  $a = 2+\sqrt{3}$ , then find the value of  $a-\dfrac{1}{a}$

**OR**

Express  $0.4\overline{7}$  in the form of p/q.

Q.10.  Find two rational numbers between -1 and -2 .

### SECTION – C     [3×5=15]

Q.11.  Plot the following points and write the name of the figure obtained by joining them in order.

P(- 3, 2), Q(- 7, - 3), R(6, - 3), S(2, 2)

Q.12.  Represent  $\sqrt{9.3}$  on the number line.

Q.13.  Find three different solutions of the equation x+2y=6

Q.14.  1500 families with 2 children were selected randomly, and the following data were recorded:

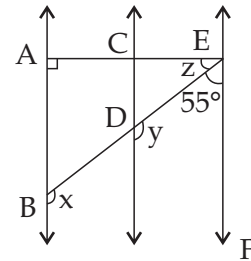| Number of girls in a family | 2 | 1 | 0 |
|---|---|---|---|
| Number of families | 475 | 814 | 211 |

Compute the probability of a family, choosen at random, having :
(i)     2 girls                    (ii)     1 girl                    (iii)     no girl

Q.15. In figure, AB∥CD and CD∥EF.

Also EA $\perp$ AB, if $\angle$BEF=55°,

Find the value of x, y and z°.

**SECTION – D** **[4×5=20]**

Q.16. The taxi fare in a city is as follows:
For the first kilometre, the fare is ₹ 8 and for the subsequent distance it is ₹ 5 per km. Taking the distance covered as x km and total fare as ₹ y. Write a linear equation for this information, and draw its graph.

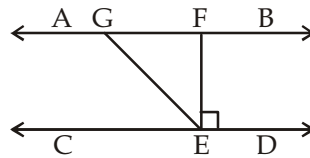Q.17. Rationalise the denominator, then find the values of a and b : $\dfrac{2-\sqrt{5}}{2+\sqrt{5}} = a\sqrt{5}+b$

Q.18. In figure, the side QR of ΔPQR is produced to a point S, if the bisectors of $\angle$PQR and $\angle$PRS meet at point T, then.

Prove that : $\angle QTR = \dfrac{1}{2} \angle QPR$
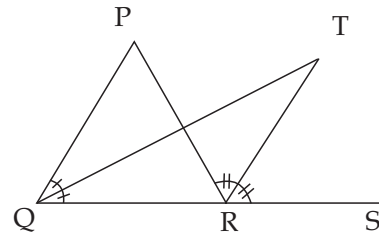
**OR**

In figure, if AB∥CD ; EF $\perp$CD and $\angle$GED=126° . Find $\angle$AGE, $\angle$GEF and $\angle$FGE

Q.19. A recent survey shows that the ages of 200 workers in a factory is distributed as follows.

| Age (in years) | 20-29 | 30-39 | 40-49 | 50-59 | 60 and above |
|---|---|---|---|---|---|
| Number of workers | 37 | 28 | 86 | 46 | 3 |

If a worker is selected at random, find the probability that the selected worker is :
(i)      40 years or more
(ii)     under 40 years
(iii)    having an age from 30 to 39 years
(iv)    under 60 but over 39 years

Q.20. Draw the graph of  2x - y= 4

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