Rollno:- 21   SFS

| Series. | K I | R II | M III | GIV |

| Roll No. | | | | |

Code No.-1/1/1

Candidate must write the Code No. on
the title page of the answer book.

- Please check that this question paper contains 4 printed pages.
- Please check that this question paper contains 30 questions.
- Please write down the Serial Number of the question before attempting it.

FIRST TERM EXAMINATION (2017-2018)
CLASS IX
MATHEMATICS

Time allowed: 3 Hours   **Maximum Marks: 80**

General Instructions:
- All questions are compulsory.
- Section A : Q1 to Q 5   carry 1 mark each.
- Section B : Q 6 to Q13   carry 2 marks each.
- Section C : Q14 to Q22   carry 3 marks each.
- Section D: Q23 to Q30   carry 4 marks each.

SECTION –A   1 × 5 = 5

Q1. One card is drawn from a well shuffled deck of cards. Find the probability of finding
a face card.

Q2. Find the class mark of the class 100-120.

Q3. The base of a right triangle is 4cm and the hypotenuse is 5cm. Find its perimeter.

Q4. The measure of an angle is twice the measure of its complementary angle. Find its measure.

Q5. In right $\triangle$ ABC, AB = BC and then find the measure of $\angle$ A.

SECTION –B   2 × 8 = 16

Q6. Using suitable identity ,factorise :
$$(5x - 5y)^3 + (5y - 3z)^3 + (3z - 5x)^3$$

Q7. Plot the point P(3, − 4) on your graph sheet and from it draw PM and PN as perpendiculars to
X axis and Y axis respectively. Write the coordinate of the points, M and N.

Q8. The probability of selecting a boy in the class is 0.6 and there are 45 students in a class,
then what is the number of girls in the class ?

Q9. The following number of goals were scored by a team in a series of 12 matches.
3,4,3,0,1,3,5,4,3,1,5,4
Find the mean and the mode of these scores.

Q10. A parallelogram and a square have the same area. If the side of the square measures 40 m, and
altitude of the parallelogram measures 25 m, find the length of the corresponding base of the
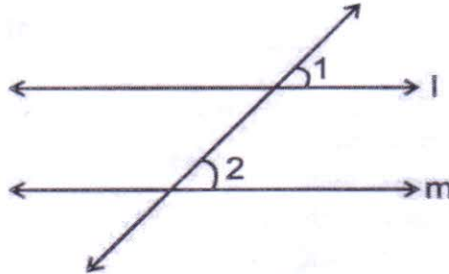parallelogram.

Q11. ABC is a triangle in which altitudes BE and CF to sides AC and AB are equal.
Show that $\triangle BEC \cong \triangle BFC$
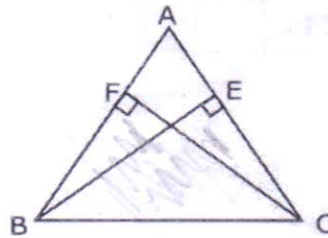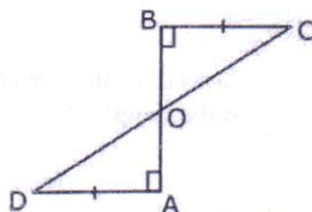
Q12. In the given figure, find the value of x
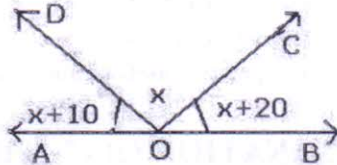
Q13. In the given figure, $\angle 1 = 60°$ and $\angle 2 = (\frac{2}{3})^{rd}$ of a right angle. Prove that the lines l ∥ m.

SECTION – C $3 \times 9 = 27$

Q14. Find the square root of
$(x^2 +4x + 4) (x^2 +6x + 9)$

Q15. Plot the points A (1,0), B (4, 0) and C (1,3) in a Cartesian plane (on the graph paper). Find the coordinates of point D so that ABCD is a square. Find its area.
ABDC

Q16. A bag contains 15 cards bearing 1,2,3,......15.A card is drawn from the bag. Find the probability that it bears :
   a) A prime number
   b) A number less than 16
   c) A number greater than 15

Q17. If the mean marks of five students is 33 and that of the marks of four of them is 32.5. Find the marks obtained by the fifth student.

Q18. Find the area of a Rhombus ,whose perimeter is 200 m ,and one of the diagonal is 80 m.

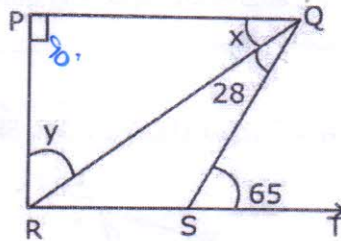Q19. AD and BC are equal perpendiculars to a line segment AB. Show that CD bisects AB.

Q20. In the given Figure, two straight lines PQ and RS intersect each other at O. If $\angle POT = 75°$, find the values of a, b and c.
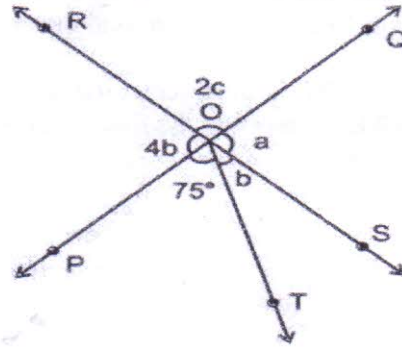
Q21. The median of the following data is 65, then find the value of x.
26, 29, 42, 53, x, x+2, 70, 75, 82, 93

Q22. In the given figure, $PQ \perp PR$, $PQ \parallel SR$, $\angle SQR = 28°$ and $\angle QST = 65°$, then find the values of x and y.

SECTION – D $4 \times 8 = 32$

Q23. Find the value of m and n in the polynomial $2x^3 + mx^2 + nx - 14$ such that (x-1) and (x+2) are its factors.

Q24. Write the coordinates of the following points.
   a) A, Whose ordinate is -7 and lies on Y axis
   b) B, Whose abscissa is 1 and lies on X axis
   c) C, Whose abscissa is 3 and ordinate is -6.
   d) Name the quadrant in which point C lies.

Q25. A recent survey found that the ages of workers in a factory are distributed as follows :

Age in years	20-29	30-39	40-49	50-59	60 and above
No. of workers	38	27	86	46	3

If a person selected at random. Find the probability that the person is:
   a) 40 years or more
   b) Under 40 years
   c) Under 60 but over 39 years.

Q26. Draw a histogram and a frequency polygon for the following data.

Marks obtained	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80
No. of students	7	10	6	8	12	3	2	2

Q27. A field is in the shape of a trapezium, having parallel sides 90m and 30m. These sides meet the third side at right angles. The length of the fourth side is 100m. If it costs Rs 4 to plough 1 sqm of the field, find the total cost of ploughing the field.

Q28. Triangle ABC is an isosceles triangle in which AB = AC. Side BA is produced to D such that AD=AB as shown in the figure. Show that $\angle$ BCD is a right angle.
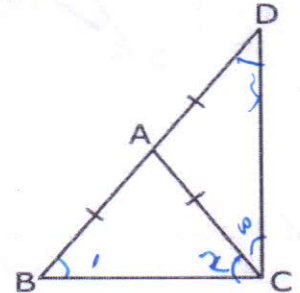
Q29. Prove the Angle sum property of a triangle.

Find all three angles of a triangle, if its two angles are equal and third angle is greater than each of the angles by $15°$.

Q30. In the given figure, AC = AE, AB = AD and $\angle$ BAD = $\angle$ EAC. Show that BC = DE.