Kendriya Vidyalaya Sangathan,Varanasi Region

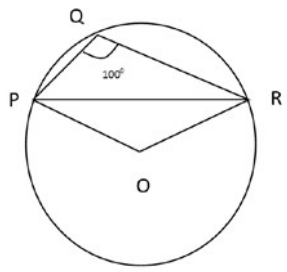
Sample question paper, Session ending exam. 2021-22

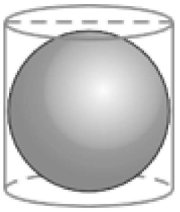
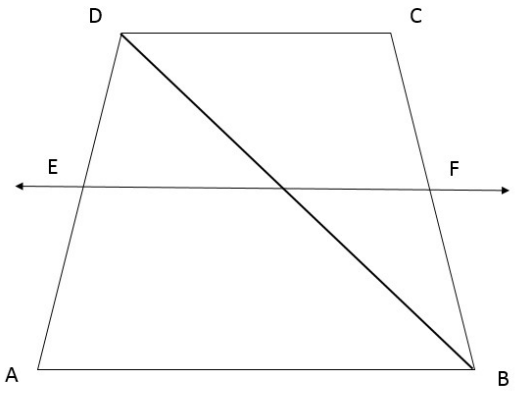
Class - IX Max. Marks : 40

Subject – Mathematics Max.Time :2 Hours

General instructions:

1 The question paper consists of 14 questions divided into three sections A,B,C.
2 All questions are compulsory.
3 Section A comprises of 6 questions of 2 marks each. Internal choice has been provided in two questions.
4 Section B comprises of 4 questions of 3 marks each. Internal choice has been provided in one question.
5 Section C comprises of 4 questions of 4 marks each. Internal choice has been provided in one question. It contains two case study –based questions.

Q No.	SECTION-A	Marks
1	Find the amount of water displayed by a solid spherical ball of radius 14 cm. (use $\pi = \frac{22}{7}$) OR Find the radius of sphere whose surface area is 314 cm^2. (Take π=3.14)	2
2	In Fig, $\angle PQR = 100^0$, where P, Q and R are points on a circle with centre O. Find $\angle OPR$. 	2
3	The angles of a quadrilateral are in the ratio 3:4:4:7. Find all angles of the quadrilateral. OR Two adjacent angles of a parallelogram are in the ratio 4:5.Find the angles of the parallelogram.	2
4	Find zeros of the polynomial $p(x) = (x-2)^2 - (x+2)^2$	2
5	A die is thrown 200 times and outcomes 1,2,3,4,5,6 have frequencies as follows: Outcome | 1 | 2 | 3 | 4 | 5 | 6 Frequency | 40 | 38 | 43 | 29 | 28 | 22 Find the probability of the following events. (i) getting 6 (ii) getting 1	2

6	In a cricket match, a batswoman hits a boundary 6 times out of 30 balls she plays. Find the probability that she did not hit a boundary.	2
	SECTION-B	
7	Give possible expressions for the length and breadth of the following rectangle in which its area is given: Area: $35y^2+13y-12$	3
8	Factorise : $27y^3+125z^3$ OR Factorise :$125X^3-27Y^3$	3
9	A right circular cylinder just encloses a sphere of radius r (see Fig).Find (i) Surface area of the sphere,  (ii) Curved surface area of the cylinder (iii) Ratio of the areas obtained in (i) and (ii)	3
10	Construct a triangle ABC in which BC=7cm, $\angle B=75^0$ and AB+AC=13cm	3
	SECTION-C	
11	ABCD is a trapezium in which AB || DC, BD is a diagonal and E is the mid-point of AD. A line is drawn through E parallel to AB intersecting BC at F (see Fig). Show that F is the mid-point of BC.  	4
12	Prove that equal chords of a circle(or of congruent circles) are equidistant from the centre (or centers) OR Prove that equal chords of a circle subtend equal angles at the centre.	4

13	 Radhika's mother gave her some money to buy Papaya from the market at the rate of $p(x) = x^2 - 12x - 220$ per kg. (i) Find the factors of the given polynomial. (ii) if she purchase 5kg papaya, what money she have to pay?	2 2
14		
	 A farmer has a water tank for cows in the shape of a cylinder with radius of 1.4 m and height of 2 m. The tank comes equipped with a sensor to alert the farmer to fill it up when the water falls to 20% capacity. (i) Find the curve surface area of tank (i) What is the volume of the tank when the sensor turns on? (use $\pi = \frac{22}{7}$)	2 2