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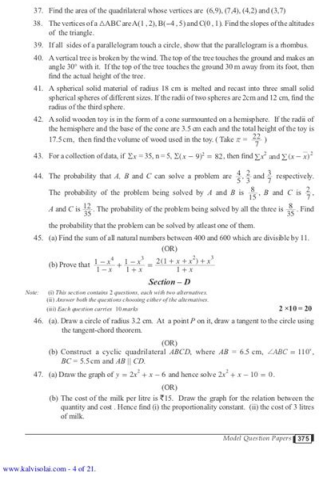

37. Find the area of the quadrilateral whose vertices are (6,9), (7,4), (4,2) and (3,7)
38. The vertices of a ΔABC are A(1 , 2), B(−4 , 5) and C(0 , 1). Find the slopes of the altitudes of the triangle.
39. If all sides of a parallelogram touch a circle, show that the parallelogram is a rhombus.
40. A vertical tree is broken by the wind. The top of the tree touches the ground and makes an angle 30° with it. If the top of the tree touches the ground 30 m away from its foot, then find the actual height of the tree.
41. A spherical solid material of radius 18 cm is melted and recast into three small solid spherical spheres of different sizes. If the radii of two spheres are 2cm and 12 cm, find the radius of the third sphere.
42. A solid wooden toy is in the form of a cone surmounted on a hemisphere. If the radii of the hemisphere and the base of the cone are 3.5 cm each and the total height of the toy is 17.5 cm, then find the volume of wood used in the toy. (Take $\pi = \frac{22}{7}$.)
43. For a collection of data, if $\Sigma x = 35$, $n = 5$, $\Sigma(x - 9)^2 = 82$, then find Σx^2 and $\Sigma(x - \bar{x})^2$
44. The probability that A, B and C can solve a problem are $\frac{4}{5}$, $\frac{2}{3}$ and $\frac{2}{7}$ respectively. The probability of the problem being solved by A and B is $\frac{8}{15}$, B and C is $\frac{2}{7}$, A and C is $\frac{12}{35}$. The probability of the problem being solved by all the three is $\frac{8}{35}$. Find the probability that the problem can be solved by atleast one of them.
45. (a) Find the sum of all natural numbers between 400 and 600 which are divisible by 11.

(OR)

(b) Prove that $\frac{1-x^4}{1-x} + \frac{1-x^3}{1+x} = \frac{2(1+x+x^2)+x^3}{1+x}$

Section – D

Note: (i) *This section contains 2 questions, each with two alternatives.*
(ii) *Answer both the questions choosing either of the alternatives.*
(iii) *Each question carries 10 marks* **2 ×10 = 20**

46. (a) Draw a circle of radius 3.2 cm. At a point P on it, draw a tangent to the circle using the tangent-chord theorem.

(OR)

(b) Construct a cyclic quadrilateral $ABCD$, where $AB = 6.5$ cm, $\angle ABC = 110°$, $BC = 5.5$ cm and $AB \parallel CD$.

47. (a) Draw the graph of $y = 2x^2 + x - 6$ and hence solve $2x^2 + x - 10 = 0$.

(OR)

(b) The cost of the milk per litre is ₹15. Draw the graph for the relation between the quantity and cost . Hence find (i) the proportionality constant. (ii) the cost of 3 litres of milk.

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