MIXED REVISION : MENSURATION & QUADRATIC EQUATION

Q1) The volume of a conical tent is 1232𝑚3 and the area of the base floor is 154𝑚2. Calculate:

i. The radius of the base.

ii. The height of the tent.

iii. The length of canvas required to cover this tent if its width is 2m.

Q2) Anamika bought some pens for ₹360. When the price of each was reduced by ₹3, she could buy 6 more pens for the same cost of ₹360. Find the original cost of the pen.

Q3) 3080 cm3 of water is required to fill a cylindrical vessel completely and 2310 cm3 of water is required to fill it up to 5 cm below the top. Find:

i. radius of the vessel.

ii. height of the vessel.

iii. wetted surface area of the vessel when it is half-filled with water.

Q4) Prove that: (sin A + sec A)2 + (cos A + cosec A)2 = (1+ sec A. cosec A)2

Q5) If x = 2 is a root of the equation (k – 3) x2 – k x – 8 = 0, find the value of k. Also, find the other root of the equation.

Q6) A conical vessel, diameter 36cm and height 25cm is filled by a cylindrical pipe of diameter 8mm. The water flows at the rate of 15 m per minute from the pipe. Find the time taken to fill the vessel completely. Give your answer correct to the nearest minute.

Q7) Solve the following equation, give your answer correct to 2 significant figures.

Q8) A grocer bought some baskets of fruit for ₹1500. Five baskets of fruit were lost in the transit. He sold each of the rest for ₹10 more than he paid for them and made neither profit nor loss. Find the number of baskets of fruit bought.

Q9) An open rectangular tank of depth 50 cm has a horizontal base of length 80 cm and breadth 25 cm. A solid metal cylinder of volume 21000 cm3 rests with its curved surface on the base of the tank. 39000 cm3 of water is poured into the tank at the rate of 65 cm3/sec.

(i) How many minutes does it take for all the water to be poured in?

(ii) If the water just covers the cylinder as shown in the figure, calculate the

(a) depth of the water, (b) radius of the cylinder, (c) length of the cylinder [Take p = 3.14]

(iii)If the cylinder is removed from the tank, by how much does the water level fall?

