

- (9) Construct tangents to a circle of radius 3cm from a point on the concentric circle of radius 5cm. (No need to write steps of construction)

SECTION – C (CASE STUDY BASED QUESTIONS)

(10)



- (i) How much cloth material will be required to cover 1 big dome of radius 4.2 metres?
 - (ii) Find the lateral surface area of 4 pillars if height of the pillar is 20m and radius of the base is 1.4m.
 - (iii) How much is the volume of 2 small hemispheres each of radius 2.1m?
 - (iv) What is the ratio of sum of volumes of four hemispheres of radius 1 m each to the volume of a sphere of radius 2m ?
- (11) Mr. R.K Agrawal is owner of a famous amusement park in Delhi. Generally he does not go to park and it is managed by team of staff. The ticket charge for the park is Rs 150 for children and Rs 400 for adults. One day Mr. Agrawal decided to random check the park and



went there. When he checked the cash counter, he found that 480 tickets were sold and Rs 134500 was collected.

(i) Let the number of children visited the park be x and number of adults be y . Which of the following is the correct system of equation that model the problem?

(a) $x + y = 480$ and $3x + 8y = 2690$

(b) $x + 2y = 480$ and $3x + 4y = 2690$

(c) $x + y = 480$ and $3x + 4y = 2690$

(d) $x + 2y = 480$ and $3x + 8y = 2690$

(ii) How many children attended the park on that day?

(a) 250

(b) 500

(c) 230

(d) 460

(iii) How many adults attended the park on that day?

(a) 250

(b) 500

(c) 230

(d) 460

(iv) How much amount will be collected if 300 children and 350 adults attended the park?

(a) 225400

(b) 154000

(c) 112500

(d) 185000

(12)

A 100 m Race was organized in a school sports meet. The time was recorded with the help of a stopwatch.



A table shown below describes the time in which the race was finished by 40 students.

Time (sec)	0-20	20-40	40-60	60-80	80-100
No. of students	6	13	10	p	8

Based on the above data answer the questions :

(i) What will be the value of p ?

(a) 4

(b) 3

(c) 2

(d) 6

(ii) The average time taken by the student to finish the race is

(a) 40

(b) 30

(c) 47

(d) 50

(iii) How many students finished the race in 1 minute 20 seconds?

(a) 40

(b) 32

(c) 29

(d) 19

(iv) What will be the sum of the lower limit of median class and upper limit of modal class?

(a) 120

(b) 100

(c) 80

(d) 60

SECTION – D

- (13) (i) Find A and B, if $\sin(A + 2B) = \sqrt{3}/2$ and $\cos(A + 4B) = 0$, where A and B are acute angles. (2)

(ii) Prove $\sqrt{\operatorname{cosec}^2 x + \sec^2 x} = \tan x + \cot x$ (3)

- (14) The line joining the points (2,-1) and (5,14) is trisected by the points P and Q. If the point P lies on the line $3x - 2y + k = 0$, find the value of k .

- (15) ABC is a triangle in which P and Q are points on AB and AC such that $PQ \parallel BC$ and it divides $\triangle ABC$ into two parts of equal areas. Find the ratio of BP/AB.