

Joint Second Terminal Examination-2080

F.M: 75

Class : 10

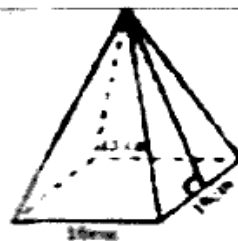
Subject: C. Maths

Time: 3hrs

Attempt all the questions.

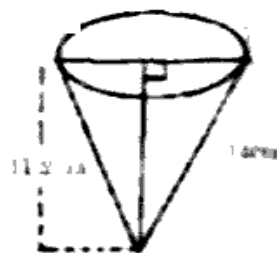
- In a survey conducted among 125 students studying in class ten of a secondary school for the purpose of conducting online classes, it was found that 65 students have mobile sets, 75 students have computers and 25 students have both the devices
 - If the set of total students is U , then write the cardinality of U in notation. (1)
 - Represent the above information in a Venn-diagram. (1)
 - Find the number of students who don't have both the equipment. (3)
 - What is the difference between the numbers of students who have any one equipment and those who do not have any? (1)
- The difference between the compound interest and simple interest on the sum of money in 2 years at 10% per annum is Rs 75
 - Let suppose the required sum be x . Find simple interest in term of x . (1)
 - Find the compound interest in term of x . (2)
 - Find the value of x . What is the sum? (1)
- A machine bought for Rs 12,42,540 is depreciated at 10% for first two years and then the rate of depreciation will be 15% for three years.
 - Define compound depreciation. (1)
 - Calculate the price of the machine after 2 years. Find it. (1)
 - What is the price of the machine after 3 years. Find it. (1)
 - Justify your answer of the price of the machine after two years and three years is the price of 5 years directly. (2)
- The man buys US \$ 1500 in one day. The next day Nepali currency is devaluated by 20% (before devaluation buying rate US\$1 = Rs. 132.53 and selling rate US\$1 = Rs. 133.17)
 - How much Nepali Currency is needed to buy US\$ 15000 on the first day? (1)
 - Find the new rate after devaluation of Nepali currency by 20%. (1)
 - What percentage of profit will he get if he sells the US dollars the next day? (2)

Observe the given right pyramid.



- a. Define right pyramid? (1)
 b. What is the vertical height of the given pyramid. (1)
 c. Find the volume of the pyramid $\frac{1}{3} a^2 h$ (2)

70 people who came to wish Anjal on his birthday ate ice-cream. The ice cream is placed on the top of the cone in the space of hemisphere

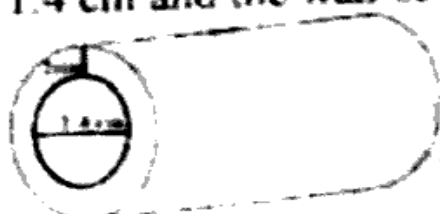


- a. What is the radius of the cone having ice-cream? (1)
 b. What is the cost of the ice-cream eaten by all people if the rate of 10cm^3 ice-cream is Re 1 (3)
 c. Among the two sisters in the party, if the elder sister ate the ice-cream at the top of the cone and the younger sister ate the ice-cream inside the cone. Who eats more ice cream? By how much (1)

A student measures his classroom and finds length 12 m, breadth 9m and height 2.75 m. There are 2 doors of the size $2\text{m} \times 1.25\text{m}$ each and 3 windows of the size $2.25\text{m} \times 1.25\text{m}$ each

- a. He calculates the area of the wall excluding doors and windows what does he find? (3)
 b. How much he expenses for plastering on 4 walls and floor at the rate of Rs 115.25 per Sq. meter? (2)

The diagram shows the cross section of circular pipe the bore of the pipe is 1.4 cm and the wall of the pipe is 2mm thick.



- a. Find the area of cross section of the bore (1)
 b. Find the cross-section area of metal used to make the pipe. (2)
 c. Find the volume of the metal pipe of length 7m (2)

9. Simplify.

$$a. \frac{x}{(x-y)(x-z)} + \frac{y}{(y-z)(y-x)} + \frac{z}{(z-x)(z-y)} \quad (3)$$

$$b. 4 - 6 \cdot 2^{x+1} - 32 = 0 \quad (3)$$

10. Five years ago the age of father was thrice as old as of his daughter and 5 years after his age will be double of his daughter

a. Write the mathematical equation of the above questions. (2)

b. Solve the equation and find the present age. (2)

c. By how many years father is older than his daughter? Find it. (1)

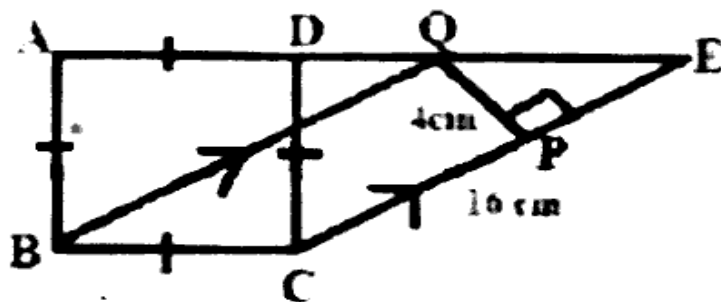
11. 3 GM are inserted between 3 and P. If the third mean is 24.

a. Find the common ratio. (1)

b. Find other 2 means. (2)

c. Find the value of P. (1)

12. In the given figure $CE = 16\text{cm}$, $PQ = 4\text{cm}$

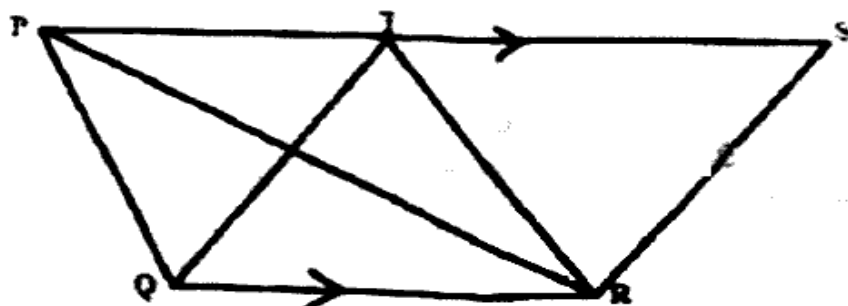


a. Which formula is used to find the area of parallelogram? (1)

b. Find the length of the side of the square ABCD. (2)

c. If the base and height of the parallelogram are increased by 10% how much percent of side of square ABCD is increased. (2)

13. In the given figure, the area of $RST = 80\text{ cm}^2$.



a. State the relation between triangle QRT and Triangle QRP in area. (1)

b. Find the area of triangle QRP. (2)

c. Are the area of triangle RST and triangle PQT equal? Give reason. (1)