



Time: 3 Hrs.

NOTE : Attempt Five Questions. Question NO.1 is compulsory.
ALL QUESTIONS CARRY EQUAL MARKS

Q 1 Fill in the Blanks :

- Joule is the unit of _____
- $\sqrt{0.25}$ is equal to _____
- One quintal is equal to _____ Kgs.
- If $\sin \theta = \sqrt{3/2}$ find $\tan \theta$ _____
- One Gallon is equal to _____ litres.
- The value of $1 + \tan^2 \theta$ is equal to _____
- One ounce is equal to _____ gms.
- One Square Metre is equal to _____ Square Feet.
- Snap gauges are used to measure _____
- $1/16$ of a fraction is equal to _____ decimal.

Q 2 a) Define work, power and energy and state their units.

- A piece of stone weighs 60 gms in air, and its weight in water is 35 gms, In 'X' liquid its weight is 42 gms. Find the specific density of the 'X' liquid?

Q 3 a) Differentiate between Kinetic Energy and Potential Energy?

- How much time a train will take to cover 60 Kms distance between the two Stations, if its average speed is 16.66 metres/sec.

Q 4 a) Solve by using logarithm tables :

$$\frac{\sqrt[3]{4.884 X} \quad \sqrt{310.5 X} \quad 0.9999}{(284.4)^{2/3}}$$

b) Find the value of 'X' and 'Y' if

$$\begin{aligned} X + Y &= 5 \text{ and } 5X + 2Y = 19 \\ X - Y &= \end{aligned}$$



- Q 5
- Write the conditions of Equilibrium of forces in a Plane?
 - Two forces of 50 kgs and 30 kgs act at an angle of 60° to each other, find the resultant?
- Q 6
- A Bus with a wheel diameter of 1000 mm and is rotating at 424 rpm. Calculate the speed of the bus in Kms per hour.
 - Find the area of a Polygon, where 10 cms is the radius of inscribed circle and length of one side is 6 cms and has 8 sides.
- Q 7
- What is the difference between specific gravity and Density?
 - A house owner wants to lay granite flooring for his newly built house, the built-up area of the house is 2400 sq.ft, the plinth area of the house is 2000 sq.ft, the cost of granite is Rs.1,000/- per sq.mtr. The labour cost of laying granite flooring is Rs.15/- per sq.ft. The wastage of granite for cutting and laying flooring slabs is around 10% what would be the cost of laying the granite flooring for the house?