

NAAHAR PUBLIC SCHOOL CBSE SENIOR SECONDARY VILLUPURAM

ACADEMIC YEAR 2022-23

MICRO REVISION -5

SUBJECT: MATHEMATICS

DATE:1.11.2022

SUBJECT TEACHER: MR.RAMACHANDRAN

DUR:60 MINS

CLASS:XII

MARKS:30

1. Find the rate of change of volume of a cone of constant height with respect to radius of the base. 1
2. Show that the function $f(x) = \log x$ is an increasing function for $x > 0$. 1
3. A balloon which always remains spherical has a variable diameter $\frac{3}{2}(2x + 1)$.
. Find the rate of change of its volume with respect to x . 2
4. Find the maximum and minimum values if any of the function given by $f(x) = \sin 2x + 5$.
2
5. The total cost $C(x)$, associated with the production of x units of an item is given
by $C(x) = 0.02x^3 + 4x^2 + 1000$. Find the marginal cost, when 5 items are produced.
2
6. A spherical balloon is being inflated by pumping in $16 \text{ cm}^3/\text{s}$ of gas. At the instant when
Balloon contains $36\pi \text{ cm}^3$ of gas, how fast is its radius increasing? 2
7. Find the intervals in which the function f given by $f(x) = 2x^3 - 9x^2 + 12x + 15$ is strictly
4
Increasing or strictly decreasing.
8. Gas is escaping from a spherical balloon at the rate of $900 \text{ cm}^3/\text{s}$. How fast is the surface area,
radius of balloon shrinking when the radius of the balloon is 30 cm? 4
9. Show that the height of the right circular cylinder of maximum volume that can be
inscribed in a given right circular cone of height h is $\frac{h}{3}$. 6
10. Show that the semi-vertical angle of a right circular cone of given total surface area and
maximum volume is $\sin^{-1} \frac{1}{3}$. 6