



12th Science:- Maths
Application of Definite Integration

DATE:

TIME: 1 Hours

MARKS: 25

SEAT NO:

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Note:-

1. All Questions are compulsory.
2. Numbers on the right indicate full marks.

Section A

Q.1 Select and write the correct answer.

(4)

1. The area bounded by the lines $y = 0$, $y \leq 2x$, $x \leq 0$, $x = 3$ is ____
A) 8 sq. units B) 9 sq. units
C) 27 sq. units D) 18 sq. units
2. The area of the circle $x^2 + y^2 = 25$ in first quadrant is ____
A) 25π sq. units B) 5π sq. units
C) 5 sq. units D) 3 sq. units

Q.2 Answer the following.

(3)

1. Find the area of the region bounded by curve $x = 0$, $x = 5$, $y = 0$, $y = 4$ on X-axis and the given line.
2. Find the area of the region bounded by curve $y = \sin x$, $x = 0$, $x = \frac{\pi}{2}$ on X-axis and the given line.
3. Find the area of the region bounded by $y = 4 - x^2$ and the X-axis.

Section B

Attempt any Four

- Q.3 Find the area of the region bounded by the given curve, the X-axis and the given line **(2)**
 $y = \frac{3}{5}x^2$, $x = 2$ to $x = 3$
- Q.4 Find the area of the region bounded by the straight line $2y = 5x + 7$, x-axis and $x = 2$, $x = 5$ **(2)**
- Q.5 Find the area of the region bounded by the curve $y^2 = 16x$ and $x = 0$, $x = 4$ on X-axis and the given line. **(2)**
- Q.6 Find the area of the region bounded by curve $y = 2x$, $x = 0$, $x = 5$ on X-axis and the given line. **(2)**
- Q.7 Find the area of the region bounded by curve $y^2 = x$, $x = 0$, $x = 4$ on X-axis and the given line. **(2)**
- Q.8 Find the area bounded by the curve $y = x^2$, the Y axis the X axis and $x = 3$ **(2)**

Section C

Attempt any Two

- Q.9 Find the area of sector bounded by the circle $x^2 + y^2 = 16$ and the line $y = x$ in the first quadrant. **(3)**
- Q.10 Find the area of the region included between $y^2 = 2x$, line $y = 2x$ **(3)**

Q.11 Find the area bounded by the curve $y = -x^2$, X-axis and lines $x = 1$ and $x = 4$ (3)

Section D
Attempt any One

Q.12 Find the area of the circle $x^2 + y^2 = 9$, using integration. (4)

Q.13 Find the area of the region bounded by the parabola $y^2 = x$ and the line $y = x$ in the first quadrant. (4)