

St. Austin's Sr. Sec. School

Self-Assessment Test 2019-20

Subject: Mathematics

Class: XII

M. Marks:60

M. Time: 2:30 Hrs.

SECTION A (Each question carries 2 marks)

Solve the integrals given below.

Q1. $\int \frac{1}{1+\cot x} dx$

Q2. $\int \frac{1+x}{(2+x)^2} dx$

Q3. $\int a^{2\log_a x} dx$

Q4. $\int \frac{1}{(1-x^2)^{3/2}} dx$

Q5. $\int_0^1 \frac{2x}{1+x^4} dx$

Q6. $\int_0^1 \frac{e^x}{1+e^{2x}} dx$

Q7. Find area of region bounded by parabola $y = x^2$ and $y = |x|$

SECTION B (Each question carries 3 marks)

Q8. Using integration, Find the area of that $\triangle ABC$ whose vertices are A(2, 0), B(4, 5) and C(6, 3). Ans 7 sq. units

Q9. $\int_0^\pi \frac{x \sin x}{1+\cos^2 x} dx$

Q10. $\int_{\pi/6}^{\pi/3} \frac{1}{1+\sqrt{\tan x}} dx$

Q11. $\int \frac{\sec^4 x}{\sqrt{\tan x}} dx.$

Q12. $\int e^x \left(\frac{1-x}{1+x^2} \right)^2 dx$

Q13. $\int \frac{\sin x + \cos x}{\sqrt{\sin 2x}} dx$

Q14. Find area of region in the first quadrant enclosed by curve $y = 4x^2$, $x = 0$, $y = 1$ and $y = 4$

Q15. $\int_0^{\pi/2} e^x \left(\frac{1+\sin x}{1+\cos x} \right) dx$

SECTION C (Each question carries 5 marks)

Q15. $\int_0^\infty \frac{dx}{(x^2+a^2)(x^2+b^2)} dx.$ Ans $\frac{\pi}{2ab(a+b)}$

Q16. $\int_0^\pi \log(1+\cos x) dx$

Q17. Find the area of region bounded by curve

$y^2 = 2x$, $y = 4x - 1$ and $y \geq 0$.

Note: As chapter 12(Differential Equation) is lengthy, I decided to take its Test Separately on 11th April.

Paper scheduled for 14th April is shifted on 15th April.

Kindly circulate the information about the test schedule to every friends which are in your contact so that everyone are benefited.

Thank you

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