



RK VISION ACADEMY

NEET | IIT – JEE | FOUNDATION

CBSE PRACTICE PAPER(2024)

(Mathematics)

Grade : XII

Marks: 40

marks

Chapter: Set-1

Time: 90 minutes

SECTION A

(This section comprises of Multiple-choice questions (MCQ) of 1 mark each.)

- $\int e^x(\cos x - \sin x)dx$
 (A) $\cos x e^x + C$ (B) $\sin x e^x + C$ (C) $-\cos x e^x + C$ (D) $-\sin x e^x + C$
- $\int x(\sin x)dx = -x \cos x + y$ if y is equal to
 (A) $\cos x + C$ (B) $\sin x + C$ (C) $-\cos x + C$ (D) $-\sin x + C$
- $\int \frac{x + \sin x}{1 + \cos x} dx$
 (A) $\log(1 + \cos x) + C$ (B) $\log(x + \cos x) + C$ (C) $\tan \frac{x}{2}$ (D) $\tan \frac{x}{2}$
- $\int \frac{\cos x - 1}{\cos x + 1} dx =$
 (a) $2 \tan \frac{x}{2} - x + c$ (b) $\frac{1}{2} \tan \frac{x}{2} - x + c$ (c) $x - \frac{1}{2} \tan \frac{x}{2} + c$ (d) $x - 2 \tan \frac{x}{2} + c$
- $\int \frac{dx}{\sin^2 x \cos^2 x} =$
 (a) $\tan x + \cot x + c$ (b) $\cot x - \tan x + c$ (c) $\tan x - \cot x + c$ (d) None of these
- $\int (\sin^{-1} x + \cos^{-1} x) dx =$
 (a) $\frac{1}{2} \pi x + c$ (b) $x(\sin^{-1} x - \cos^{-1} x) + c$ (c) $x(\cos^{-1} x + \sin^{-1} x) + c$ (d) $\frac{\pi}{2} + x + c$
- $\int \frac{dx}{\sin x + \sqrt{3} \cos x} =$
 (a) $\log \tan \left(\frac{x}{2} + \frac{\pi}{2} \right) + c$ (b) $\frac{1}{2} \log \tan \left(\frac{x}{2} + \frac{\pi}{6} \right) + c$ (c) $\log \cot \left(\frac{x}{2} + \frac{\pi}{6} \right) + c$ (d) $\frac{1}{2} \log \cot \left(\frac{x}{2} + \frac{\pi}{6} \right) + c$
- $\int \frac{\cos 2x - \cos 2\alpha}{\cos x - \cos \alpha} dx =$
 (a) $2[\sin x + \sin \alpha] + c$ (b) $2[\sin x + \sin \alpha] + c$ (c) $2[-\sin x + \sin \alpha] + c$ (d) $-2[\sin x + \sin \alpha] + c$
- $\int e^{\log(\sin x)} dx =$
 (a) $\sin x + c$ (b) $-\cos x + c$ (c) $e^{\log(\cos x)} + c$ (d) None of these
- $\int \sqrt{1 + \cos x} dx$ equals
 (a) $2\sqrt{2} \sin \frac{x}{2} + c$ (b) $-2\sqrt{2} \sin \frac{x}{2} + c$ (c) $-2\sqrt{2} \cos \frac{x}{2} + c$ (d) $2\sqrt{2} \cos \frac{x}{2} + c$

SECTION B

(This section comprises of very short answer type-questions (VSA) of 2 marks each.)

11 $\int (x^2 + 1)\log x \, dx$

12 $\int e^x \sec x(1 + \tan x) dx$

13 $\int \tan^{-1} x \, dx$

SECTION C

(This section comprises of short answer type questions (SA) of 3 marks each)

14 $\int \frac{x \sin^{-1} x}{\sqrt{1-x^2}} dx$

15 $\int \sqrt{3-2x-x^2} dx$

16 $\int \frac{xe^x}{(1+x)^2} dx$

SECTION D

(This section comprises of long answer-type questions (LA) of 5 marks each)

17 $\int e^{-3x} \cos^3 x \, dx$

18 $\int \sin^{-1} \sqrt{\frac{1}{a+x}} dx$

19 $\int \frac{x^2}{(x^2+4)(x^2+9)} dx$