Department of Mathematics

M-106

Second Mid Term Exam
Second Semester(1428/29)

Max. Marks: 20 **Time: 90 minutes**

Name:.....Number:.....

Marks:

Multiple Choice(1-to-10).....[	**]**
Question (11).....[	**]**
Question (12).....[	**]**
Question (13).....[	**]**
Question (14).....[	**]**
Total.....[	**]**

Multiple Choices

Q.No.	1	2	3	4	5	6	7	8	9	10
{a,b,c,d}										

Q.No:1 The sum $\underset{x\to 0}{Lim}\dfrac{\tan(x)-x}{Sin(x)}$ is equal to:

(a) 0 (b) ∞ (c) -1 (d) None of these.

Q.No:2 The integral $\int_0^1 xe^x dx$ is equal to

(a) 1, (b) -1, (c) 0, (d) Note of these.

Q.No:3 $\int_1^2 \dfrac{\ln(x)}{x^2}dx$ is equal to

(a) $\dfrac{1}{2}-\dfrac{1}{2}\ln(2)$ (b) $\dfrac{1}{2}\ln(2)-\dfrac{1}{2}$, (c) $2-\ln(2)$ (d) None of these.

Q.No:4 The substitution $x=3Sec\theta$ transforms $\int\dfrac{1}{\sqrt{x^2-9}}dx$ into

(a) $\int Sec\theta d\theta$ (b) $\int 3Sec\theta d\theta$ (c) $\int \tan\theta d\theta$ (d) None of these.

Q.No:5 To evaluate the the integral $\int\dfrac{x^{3/2}-1}{x^{2/3}+1}dx$ we put

(a) $u=x^{1/6}$, (b) $u=x^{1/2}$, (c) $u=x^{1/3}$, (d) None of these.

Q .No:6 The partial fractions for solving the integral $\int\dfrac{1}{x^2(x^2-1)}dx$ are

(a) $\dfrac{A}{x^2}+\dfrac{Bx+c}{x^2-1}$, (b) $\dfrac{A}{x^2}+\dfrac{B}{(x+1)}+\dfrac{C}{(x-1)}$, (c) $\dfrac{A}{x}+\dfrac{B}{x^2}+\dfrac{C}{(x+1)}+\dfrac{D}{(x-1)}$, (d) None of these.

Q.No:7 The integral $\int_0^\infty\dfrac{1}{3+x}dx$, is equal to

(a) ∞, (b) $-\infty$, (c) 0, (d) None of these.

Q.No:8 To solve the integral $\int\dfrac{1}{10-2x+x^2}dx$ we use

(a) Completing the square,(b)Partial fractions, (c) Integration by parts, (d) None of these.

Q.No:9 The substitution $u=\tan\left(\dfrac{x}{2}\right)$ transforms the integral $\int\dfrac{1}{1+Sinx}dx$ into

(a) $\int\dfrac{2}{(1+u)^2}du$, (b) $\int\dfrac{2}{(1-u)^2}du$, (c) $\int\dfrac{1}{(1+u)^2}du$ (d) None of these.

Q.No:10 The value of the integral $\int\tan xSec^4 xdx$ is equal to

(a) $\dfrac{2\tan^2 x+\tan^4 x}{4}+c$, (b) $\tan^2 x+\dfrac{\tan^2 x}{4}+c$, (c) $\dfrac{Sec^4 x}{4}+c$ (d) None of these.

Question No: 11 Find the $\lim_{x \to 0} \frac{Cos(4x) - Cos(3x)}{x^2}$ if it exists.

Question No: 12 Evaluate the integral $\int \frac{x^2}{\left(4 - x^2\right)^{1/2}} dx$

Question No: 13 Evaluate the integral $\int \frac{2x^3 - 4x^2 - 15x + 5}{x^2 - 2x - 8} dx$

Question No: 14 Evaluate the integral $\int_0^1 x^{-1/3} dx$