Department of Mathematics

M-106

First Mid Term Exam

Summer Term(1435)

Max. Marks: 25 Time: 90 minutes

----------اسم الطالب:---------- رقم الجامعي

Marks:

Multiple Choice(1-to-5).....[	]
Question (6).....[	]
Question (7).....[	]
Question (8).....[	]
Question (9).....[	]
Question (10).....[	]
Total.....[	]

Marking Scheme:[From Q.No.1-to-Q.No.5 one mark each]

Multiple Choices

Q. No:	1	2	3	4	5
{a,b,c,d}					

Q.No:1 The sum $\sum_{k=1}^{4}(3k+1)$ is equal to:

(a) 34 (b) 36 (c) 30 (d) 21

Q.No:2 If $f(x)=x^2+1$, then the number z that satisfies the conclusion of the Mean Values theorem on [0,1] is

(a) $\frac{1}{\sqrt{3}}$ (b) $-\frac{1}{\sqrt{3}}$ (c) $\frac{1}{4}$ (d) 1

Q.No:3 The average value of the function $f(x)=2x-x^2$ on the interval [0,1] is:

(a) $\frac{1}{3}$ (b) $\frac{2}{3}$ (c) 1 (d) $\frac{1}{5}$

Q.No:4 If $f(x)=\int_{x}^{x^2}\cos(t^2)dt$ then $f'(x)$ is equal to:

(a) $2x\cos(x^4)-\sin(x^2)$, (b) $2x\cos(x^4)+\cos(x^2)$, (c) $2x\cos(x^4)-\cos(x^2)$

Q .No:5 The value of the integral $\int_{1}^{2}-\frac{e^{1/x}}{x^2}dx$ is equal to :

(a) $e^{1/2}-e$, (b) $-\frac{1}{2}(e^{1/2}-e)$, (c) $e^{1/2}+e$ (d) None of these.

Question No: 6 Use the Trapezoidal rule to approximate the integral

$$\int_0^1 e^{x^2}\,dx \text{ with } n = 4.$$ [4]

Question No: 7 Evaluate the integral $\int \frac{\sqrt{x}}{\left(x^{3/2}+1\right)^3}\,dx$ [3]

Question No: 8 Find y' if $y = (x+1)^{\sin x}$. [4]

Question No: 9 Evaluate the integral $\int \frac{1}{x\sqrt{x^6-1}}dx$. [3]

Question No: 10 Find the $\lim_{x\to 0^+}(e^x-1)^x$ if it exists [4]