Lalbaba College

MTMG

Internal Assessment - 2021

Semester - 3

Paper - MTMG-CC-3-3 / MTM-G-GE-3-3.

Full marks - 10 (1+2+1+1+1+1+1+1+1) Time - 30 minutes

• Answer the following questions and choose the correct option.

1. If $I_n = \int_0^{\frac{\pi}{4}} \tan^n\theta \, d\theta$, then the value of I_2 is

(A) $1+\frac{\pi}{4}$ (B) $1-\frac{\pi}{4}$ (C) $\frac{\pi}{4}$ (D) 1

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

(A) 0 (B) $\frac{1}{2}$ (C) 1 (D) $\frac{3}{2}$

3. Which of the following Improper integral is of 2nd Type ?

(A) $\int_2^{\infty} \frac{1}{x^2-1} dx$ (B) $\int_{-\infty}^{1} \frac{1}{(3-x)^2} dx$ (C) $\int_0^{\infty} \frac{dx}{\sqrt{x(1-x)}}$ (D) $\int_1^3 \frac{dx}{(x-1)}$

4. Which of the following statement is not correct ?

(A) $\beta(-5,6)$ has no value (B) $\beta(0,7)$ must have a value

(C) $\beta(6.7,2)$ must have a value (D) $\beta(2,0)$ has no value.

5. Round-off of the number 3.45672 upto four significant figures is

(A) 3.456 (B) 3.457 (C) 3.458 (D) none of these

6. The value of $\Delta \sin 2x$ is

(A) $2\sin(2x+h)\sinh$ (B) $2\cos(2x+h)\sinh$ (C) $2\cos(2x+h)\cosh$

(D) $2\cos(2h+x)\sin x$.

7. If Δ and ∇ are the forward and backward difference operators respectively and E be the shifting operator, then which of the following is correct ?

(A) $\nabla = 1+E^{-1}$ (B) $\Delta = 1+E^{-1}$ (C) $\nabla = 1-E^{-1}$ (D) $\Delta = 1-E^{-1}$.

8. The Trapezoidal rule of integration, when applied, $\int_a^b f(x)\,dx$ will give the exact value of the integral

(A) if $f(x)$ is any function of x.

(B) if $f(x)$ is a linear function of x.

(C) if $f(x)$ is a quadratic function of x.

(D) if $f(x)$ is a cubic function of x.

9. The method of tangent is known as

(A) Newton-Raphson method (B) Bisection method

(C) Iteration method (D) Regula-Falsi method