Graphic Era HILL UNIVERSITY
Established by an Act of the State Legislature of Uttarakhand (Adhiniyam Sankhya 12 of 2011)
University under section 2(f) of UGC Act, 1956

## Term Evaluation (Odd) Semester Examination September 2025

Roll No.....

Name of the Course: Diploma (CSE/CS/ME)
Semester: III
Name of the Paper: Applied Mathematics
Paper Code: DTMA 301/305
**Time: 1.5 Hour** **Maximum Marks: 50**

**Note:**
*(i)* Answer all the questions by choosing any one of the sub-questions.
*(ii)* Each question carries 10 marks.

Q1. CO1(10 Marks)

a. Integrate the following functions with respect to $x$.

$(i)\ (x+2)(x-1)(x+5)$, $(ii)\sqrt{x}(x^2+2x+3)$.

OR

b. Integrate the following by the method of partial fractions

$(i)\int \frac{dx}{x(x+1)}$, $(ii)\int \frac{2}{x^2-8x+15}dx$.

Q2. CO1(10 Marks)

a. Evaluate the following integration

$(i)\int (4e^{3x}+5x)dx$, $(ii)\int \frac{(e^x+1)^2}{\sqrt{e^x}}dx$.

OR

b. Evaluate the following integration

$(i)\int \frac{5\,dx}{25-x^2}$, $(ii)\int \frac{dx}{\sqrt{25-9x^2}}$.

Q3. CO2 (10 Marks)

a. Calculate the following integration function

(i) $\int (sin\ 3x - \cos 2x)dx$, (ii) $\int \frac{1}{1+sinx}dx$.

OR

b. Calculate the following definite function

(i) $\int_1^{\sqrt{3}} \frac{dx}{1+x^2}$, $(ii)\int_4^5 \frac{2x}{x^2+1}dx$.

Q4. CO2 (10 Marks)

a. Compute the following integration

$(i)\int xsinx$, $(ii)\int logx\ dx$.

OR

b. Evaluate

(i) $\int_0^{\frac{\pi}{2}} \frac{\cos x}{3+4sinx}\,dx$, (ii) $\int_0^{\frac{\pi}{2}} cos^2 x dx$.

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Q5. CO1& CO2 (10 Marks)

a. Integrate the following functions

(i) $\int \frac{tanx}{sinx\ cosx} dx,$ (ii) $\int xcosx\ dx.$

OR

b. Compute the following integration function

(i) $\frac{dx}{\sqrt{a^2 - x^2}},$ (ii) $\left(\sqrt{x} - \frac{1}{\sqrt{x}}\right)^2.$