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

Term Evaluation Theory (Odd)-(Late/Lateral Admission) Exam Nov. 2025

Roll No.....

Name of the Course: Diploma (CSE/CE/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.

$(i)\ e^x + a^x + \frac{1}{x} + 5 + x$ $(ii)\ \int \frac{6x}{\sqrt{3x+2}}$

OR

b. Integrate the following by the method of partial fractions

$(i)\ \int \frac{1}{3x^2+4x+1}dx,$ $(ii)\ \int \frac{dx}{9x^2-16}\ dx$

Q2. CO1(10 Marks)

a. Evaluate the following integration

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

OR

b. Evaluate the following integration

$(i)\ \int \frac{dx}{81-x^2},$ $(ii)\ \int \frac{1}{a^2x^2+b^2dx}.$

Q3. CO2 (10 Marks)

a. Calculate the following integration function

(i) $\int (sin\ 3x + \tan 2x)dx,$ (ii) $\int_0^{\pi/2} cos^2 x dx$

OR

b. Calculate the following definite function

(i) $\int_0^{\pi} xcos2xdx$ (ii) $\int_4^5 \frac{2x}{x^2+1}dx.$

Q4. CO2 (10 Marks)

a. Compute the following integration

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

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) $\int sin5x.sin3x\,dx$ (ii) $\int xe^x\,dx.$

OR

b. Compute the following integration function

(i) $\int \frac{3x-4}{x^2-3x+2},$ (ii) $\left(\sqrt{x}+\frac{1}{\sqrt{x}}\right)^2.$