

DAE/IIA-2016/08 SECOND YEAR

(Common with Bio Medical, Computer, Food
Computer Information, Electrical, Electronics,
Food Processing & Preservation, Instrument, Critical Health Care and
Telecommunication Technologies.)

MATH-233 APPLIED MATHEMATICS – II

PAPER – B (PART – B)

Time: 2:30 Hours

Marks: 60

SECTION – I

Q.1: Write short answer to any Eighteen (18) of the questions: -

18 × 2 = 36

1.	Evaluate $\int (ax^n + bx^m) dx$	2.	Evaluate $\int (x^2 + 3x + 4)^3 (2x + 3) dx$
3.	Evaluate $\int 8(2x + 1)^3 dx$	4.	Evaluate $\int (\cos^2 x) dx$
5.	Evaluate $\int \left(\frac{\sin 2x}{\sin x}\right) dx$	6.	Evaluate $\int (\tan x - \sec^2 x) dx$
7.	Find $\int \frac{(\ln x)^3}{x} dx$	8.	Evaluate $\int \frac{1}{2} \left(e^{\frac{1}{2}x} - e^{-\frac{1}{2}x} \right) dx$
9.	Evaluate $\int \frac{dx}{\sqrt{25 - 16x^2}}$	10.	Evaluate $\int (x \sec^2 x) dx$
11.	Evaluate $\int (x \ln x) dx$	12.	Evaluate $\int_1^3 \frac{1}{x+1} dx$
13.	Evaluate $\int_0^{\pi/6} (\sec^2 x) dx$	14.	Find the area bounded by the curve $y = x^3 + 3x^2$ the x-axis, and the lines $x = 0$ and $x = 2$.
15.	Define differential equation.	16.	Solve the differential equation $dy = \sec^2 x dx$
17.	Write down the order and degree of differential equation $\frac{dy}{dx} + 2y = 0$	18.	What are Fourier coefficients.
19.	Define Even Function.	20.	Find Laplace transform of a constant 'K'.
21.	Write Laplace transform of e^{at} .	22.	What is inverse Laplace transform of $\frac{2}{s^3}$?
23.	Find $\int \left(\frac{\cot x}{\ln \sin x}\right) dx$	24.	Find $\int \left(\frac{x^2}{4 + x^2}\right) dx$
25.	Integrate $\int \frac{\cos^{-1} x}{\sqrt{1 - x^2}} dx$	26.	Integrate $\int (x.e^{x^2}) dx$
27.	Show that $\int_1^3 (x^2) dx$		

SECTION - II

Note: Attempt any three (03) questions.

3 × 8 = 24

Q.2. [a] Evaluate $\int \left(\frac{x^3 - 8}{x + 2} \right) dx$

[b] Evaluate $\int \frac{dx}{1 - \cos x}$

Q.3. [a] Evaluate $\int \frac{dx}{(a^2 - x^2)^{3/2}}$

[b] Evaluate $\int (e^x \sin x) dx$

Q.4. [a] Evaluate $\int_{-2}^0 (x\sqrt{2x^2 + 1}) dx$

[b] Compute the area bounded by the curve $y = \sqrt{x}$ and $y = x^2$.

Q.5. Find the general solution of $dx + xydy = y^2 dx + ydy$

Q.6. Find the Laplace transform of the function $\cos \omega t$.
