

DAE/IA-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 $\int(\sqrt{x}) dx$	2.	Evaluate $\int(\cos^2 x) dx$
3.	Evaluate $\int\left(\frac{1+x}{x}\right) dx$	4.	Evaluate $\int(\sin x - \cos x)^2 dx$
5.	Evaluate $\int(\cos^4 x \sin x) dx$	6.	Evaluate $\int \frac{dx}{(1+x^2)\tan^{-1} x}$
7.	Evaluate $\int\left(\frac{1}{\sqrt{x}} \sin \sqrt{x}\right) dx$	8.	Evaluate $\int\left(\frac{\ln x}{x}\right) dx$
9.	Evaluate $\int(x \cos 3x) dx$	10.	Evaluate $\int(x \ln x) dx$
11.	Evaluate $\int_1^3(x^2) dx$	12.	Find the area bounded by the line $3x - y - 3 = 0$ and $x = 1$ & $x = 5$.
13.	Find the general solution of $xdy = 3ydx$	14.	Evaluate $\int_{-\pi/2}^{\pi/2}(\cos x) dx$
15.	Evaluate $\int_0^{\pi/4}(1 + \sec^2 x) dx$	16.	Solve the differential equation $(1-x)dy = (1+y)dx$
17.	If a function is even integrable on $[-\pi, \pi]$ then which co-efficient exist.	18.	Find the Laplace transforms of '1'.
19.	If $L\{t^n\} = \frac{n!}{s^{n+1}}$ then what will be $L\{t^7\}$.	20.	Find the solution of $\frac{dy}{dx} = -\sin x + 3x^2$
21.	Find the value of $\int 10(x^2 - 3x + 4)^9(2x - 3) dx$	22.	Find $\int\left(x + \frac{1}{x}\right)^2 dx$
23.	Find $\int \frac{(\ln x)^3}{x} dx$	24.	Evaluate $\int(x \sec^2 x) dx$
25.	Find $L^{-1}\left\{\frac{1}{s-a} - \frac{1}{s+a}\right\}$	26.	Evaluate $\int\left(\frac{x^3+1}{x^5}\right) dx$
27.	Find $\int(e^x + e^{2x} + e^{3x}) dx$		

SECTION - II

Note: Attempt any three (03) questions.

3 × 8 = 24

Q.2. [a] Evaluate $\int \frac{1}{\sqrt{x+a} + \sqrt{x+b}} dx$

[b] Evaluate $\int (\tan x + \cot x)^2 dx$

Q.3. [a] Evaluate $\int (x\sqrt{x-a}) dx$

[b] Evaluate $\int \ln(x^2 + 1) dx$

Q.4. [a] Evaluate $\int_2^3 \left(\frac{x}{1+x^2} \right) dx$

[b] Find area bounded by $y = 3x$, $y = x^2$ between $x = 1$ and $x = 3$.

Q.5. [a] Find the general solution of $ydx = 2(xy + x) dy$

[b] Evaluate $\int (\sin^3 x) dx$

Q.6. Find $L\{\sin wt\}$
