

Ajay Kumar Garg Engineering College, Ghaziabad
Department of Applied Sciences & Humanities
Sessional Test-1

Course: B.Tech
 Session: 2024-25
 Subject: Engg. Mathematics -II
 Max Marks: 25

Semester: 2nd
 Section: All sections excluding S-10
 Sub. Code: BAS-203
 Time: 1 hour

OBE Remarks: All questions are related to CO1.

Q.No	1	2	3	4	5	6	7
CO No.	CO1	CO1	CO1	CO1	CO1	CO1	CO1
Bloom's Level* (L1 to L6)	L1	L1	L2	L3	L4	L5	L5

*Bloom's Level: L1: Remember, L2: Understand, L3: Apply, L4: Analyze, L5: Evaluate, L6: Create

Note: Answer all the sections.

Section-A

(3×2 = 6)

A. Attempt all the parts.

1. Using the method of changing the independent variable find P_1 and Q_1 for the differential equation

$$\frac{d^2y}{dx^2} + (3\sin x - \cot x) \frac{dy}{dx} + 2y \sin^2 x = e^{-\cos x} \sin^2 x.$$

2. Solve the differential equation: $(D^2 + 1)^3(D^2 + D + 1)^2y = 0$ where $D = \frac{d}{dx}$

3. Find Particular integral of $\frac{d^2y}{dx^2} + 4y = \sin 2x$.

Section-B

(3×4 = 12)

B. Attempt all the parts.

4. Find the general solution of the differential equation: $\frac{d^2y}{dx^2} + 3\frac{dy}{dx} + 2y = e^{e^x}$.

5. Solve: $\frac{d^2y}{dx^2} - 2\frac{dy}{dx} + y = xe^x \cos x$.

6. Solve: $(1+x)^2 \frac{d^2y}{dx^2} + (1+x) \frac{dy}{dx} + y = 4\cos\{\log(1+x)\}$.

Section-C

(1×7 = 7)

C. Attempt all the parts.

7. Solve by the method of variation of parameters:

$$\frac{d^2y}{dx^2} - 3\frac{dy}{dx} + 2y = \frac{e^x}{1+e^x}$$


 Faculty Sign


 HoD Sign