Department of Applied Sciences & Humanities

Question Bank of AM-II (IA-I)

FE Semester-I
(AY- 2025-26)

Q.1 Solve $(x^4 e^x - 2mxy^2)dx + 2mx^2 y\, dy = 0$

Q2. *Solve* i) $(x^4 + y^4)dx - xy^3 dy = 0$

ii) $\dfrac{dy}{dx} = e^{x-y}(e^x - e^y)$

Q.3 *Solve* $\dfrac{dy}{dx} + xsin2y = x^3 cos^2 y$

Q4. *Solve* $(D^2 + 4)y = Cosh2x$

Q.5 Solve $\dfrac{d^2 y}{dx^2} + 2y = e^x - \cos(2x)$

Q.6 Find the Particular Integral of $(D^2 - 2D + 1)y = e^x + 1$

Q.7 Use Euler's method to find the value of y at x=0.6 in 3 steps taking h=0.2. Given $\dfrac{dy}{dx} = x + y$ and y(0)=1

Q.8 Using Euler's Modified Method to find y(0.1) from $\dfrac{dy}{dx} = y - \dfrac{2x}{y}$, given

y(0) =1 taking h=0.1

Q.9 *Solve*

$\dfrac{dy}{dx}$ = xy , x_0 =1 , y_0 = 2 by Runge- Kutta Method of 4th Order for x =1.2 (h=0.2)

Q.10 . *Evaluate*

$\displaystyle\int_0^{\pi/2} \dfrac{Sinx}{x}\, dx$ *by* i) *Trapezoidal Rule* ii) *Simpson's* $\left(\dfrac{3}{8}\right)^{th}$ *Rule.*