CC 04 2ND INTERNAL

ANSWER THE FOLLOWING QUESTIONS

* Required

Email *

Your email

Name *

Your answer

Registration number *

Your answer

Roll No. *

Your answer

*

2 points

1. Applying Picard's method the solution of the initial value problem $\frac{dy}{dx} = 2y - 2x^2 - 3, given\ y = 2\ when\ x = 0$ upto second approximation is

a) $y_2 = 2 + x + x^2 - \frac{2x^3}{3} - \frac{x^4}{3}$

b) $y_2 = 2 + x + x^2 - \frac{2x^3}{3} - \frac{x^4}{4}$

c) $y_2 = 2 + x + x^2 + \frac{2x^3}{3} - \frac{x^4}{3}$

d) $y_2 = 2 + x + x^2 - \frac{2x^3}{3} + \frac{x^4}{4}$

- a
- b
- c
- d

*

3 points

2. Solution of the differential equation $9x(1-x)y_2 - 12y_1 + 4y = 0$ about $x = 0$ is

a) $c_1\left[1 + \frac{1}{3}x + \frac{1.4}{3.6}x^2 + \frac{1.4.7}{3.6.9}x^3 + \cdots\right] + c_2x^{\frac{2}{3}}[1 + \frac{8}{10}x - \frac{8.11}{10.13}x^2 + \cdots]$

b) $c_1\left[1 + \frac{1}{3}x + \frac{1.4}{3.6}x^2 + \frac{1.4.7}{3.6.9}x^3 + \cdots\right] + c_2x^{\frac{2}{3}}[1 + \frac{8}{10}x + \frac{8.11}{10.13}x^2 + \cdots]$

c) $c_1\left[1 + \frac{1}{3}x + \frac{1.4}{3.6}x^2 - \frac{1.4.7}{3.6.9}x^3 + \cdots\right] + c_2x^{\frac{2}{3}}[1 + \frac{8}{10}x + \frac{8.11}{10.13}x^2 + \cdots]$

d) $c_1\left[1 + \frac{1}{3}x + \frac{1.4}{3.6}x^2 + \frac{1.4.7}{3.6.9}x^3 + \cdots\right] + c_2x^{\frac{3}{2}}[1 + \frac{8}{10}x + \frac{8.11}{10.13}x^2 + \cdots]$

- a
- b
- c
- d

*

2 points

3. If $\vec{r}(t) = 5t^2\hat{\imath} + t\hat{\jmath} - t^3\hat{k}$, then the value of $\int_1^2 [\vec{r} \times \frac{d^2\vec{r}}{dt^2}]\, dt$ is

a) $14\hat{\imath} - 75\hat{\jmath} + 15\hat{k}$ b) $7\hat{\imath} + 12\hat{\jmath} - 5\hat{k}$

c) $-14\hat{\imath} + 75\hat{\jmath} - 15\hat{k}$ d) $-14\hat{\imath} - 75\hat{\jmath} + 15\hat{k}$

- a
- b
- c
- d

*

3 points

4. General solution of the differential equation $y_2 + y = cosec\ x$ is

a) $y = c_1 \sin x + c_2 \cos x + \sin x \log(\sin x) + x\cos x$

b) $y = c_1 \sin x + c_2 \cos x + \sin x \log(\sin x) - x\sin x$

c) $y = c_1 \sin x + c_2 \cos x + \sin x \log(\cos x) - x\cos x$

d) $y = c_1 \sin x + c_2 \cos x + \sin x \log(\sin x) - x\cos x$

- a
- b
- c
- d

Submit Clear f

Never submit passwords through Google Forms.