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NPTEL

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Courses » Integral Equations,calculus of variations and its applications

Announcements **Course** Ask a Question Progress Mentor FAQ

Unit 1 - How to access the portal

Course outline

How to access the portal

- How to access the home page?
- How to access the course page?
- How to access the MCQ, MSQ and Programming assignments?
- Quiz : Assignment0
- New Lesson

Week-1

Week 2

Week 3

Week 4

Week 5

Week 6

Week 7

Week 8

Assignment0

The due date for submitting this assignment has passed.

As per our records you have not submitted this assignment. **Due on 2018-07-30, 23:59 IST.**

1) 1 point

A Volterra integral equation corresponding to the differential equation

$$\frac{d^2y}{dx^2} + y = \cos x, \quad y(0) = 0, \quad y'(0) = 1 \text{ is}$$

$$y = x + \int_0^x (x-t)y(t)dt$$

$$y = (1+x-\cos x) - \int_0^x (x-t)y(t)dt$$

$$y = \frac{x^2}{2} + \int_0^x (x-t)y(t)dt$$

$$y = \frac{x^3}{3} + \int_0^x (x-t)y(t)dt$$

No, the answer is incorrect.

Score: 0

Accepted Answers:

$$y = (1+x-\cos x) - \int_0^x (x-t)y(t)dt$$

2) The extremal of the functional $\int_1^2 \frac{x^3}{y^2} dx$ 1 point

with $y(1) = 0$ and $y(2) = 3$ is

$$y = \frac{3}{7} (x^3 - 1)$$

$$y = 3(x-1)$$

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Accepted Answers:

$$y = x^2 - 1$$

3) The extremizing curve of Brachistochrone problem is a

1 point

- circle
- catenary
- cycloid
- straight line

No, the answer is incorrect.

Score: 0

Accepted Answers:

cycloid

4)

1 point

Which of the following functions is a solution of the Volterra integral equation

$$\int_0^x e^{x-t} u(t) dt = x$$

- 1+x
- 1-x
- x-1
- 1

No, the answer is incorrect.

Score: 0

Accepted Answers:

1-x

5) Which of the following functions is solution of the Fredholm integral equation

1 point

$$\phi(x) + \int_0^1 x(e^{xt} - 1)\phi(t) dt = e^x - x$$

- x
- 1+x
- 1
- 1

No, the answer is incorrect.

Score: 0

Accepted Answers:

1

6)

1 point

Which one of the functions is a solution of Volterra integral equation

- 1
-
- $\frac{1}{2}$
- 2
-
- $\sqrt{\frac{1}{3}}$

No, the answer is incorrect.

Score: 0

Accepted Answers:

$$\frac{1}{2}$$

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