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## MTH301 Final Term Paper shared by Student

[ALIZY KHAN](#) on August 18, 2017 at 6:29pm

Today is my paper.....

total question is 52.

40 mcqs & 12 subjective question.

4 question 2 marks, 4 question 3 marks & 4 question 5 marks.

70% mcqs **moaz file** se thy.

or **subjective question**

2 subjective question **even, odd or neither function** k bare m thy

1 question **grad div.** A K bare m tha.

or 1 question **chain rule** wala tha.

## MTH301 Final Term Paper shared by Student

by [ALI ALI](#) on August 19, 2017 at 7:35pm

Asslam o Alikum

MCQZ 60% from moazz file and book also.

subjective:

1. Determine the fourier co-efficient  $a_0$  of the following function.

$$f(x) = \begin{cases} x & 0 \leq x < \pi \\ 0 & \pi \leq x < 2\pi \end{cases}$$

2. Determine the fourier co-efficient  $b_n$  of the following function

3. double integral

4. Prove whether the following function is even, odd or neither.

$$f(x) = x^3 e^x$$

5. Curl (curl of a vector function) find krna tha

6. rectangular coordinates find krny thy from polar coordinates given thy

$$x = r \sin \theta$$

$$y = r \cos \theta \text{ formula}$$

7. chan rule apply krna tha

8. Use Wallis sine formula to evaluate

5

$$\int \sin^5 x \, dx$$

∫

9. critical points find out krny thy

10. odd and even function find krny thy.

# MTH301 Final Term Paper 2016 shared by Student

**Question#1)** Prove whether the following function is even, odd or neither.  $f(x) = x^3 + x^2$  (2 Marks)

**Question#2)** Given . Find scalar triple product of these vectors.  $\vec{a} \times \vec{b} = \sqrt{2}i + 3j$  and  $\vec{c} = \frac{1}{\sqrt{2}}i + k$  (2 Marks)

**Question#3)** Given the equations of two curves  $y = x^2$  and  $y = \sqrt{x}$  Find the intersecting points of these curves. (2 Marks)

**Question#4)** Find  $\|r(t)\|$  where (2 Marks)

$$r(t) = t\hat{i} + (t-1)\hat{j} + 2\hat{k}$$

**Question#5)** Determine whether the following differential is exact or not.  $dz = (2xy + 6x) dx + (x^2 + 2y^3) dy$

(3 Marks)

**Question#6 )** What is the arc-length of the curve  $\vec{r}(t) = (4 + 3t)\hat{i} + (2 - 2t)\hat{j}$  when  $3 \leq t \leq 4$

(3 Marks)

**Question#7)** If  $g = f(x, y, z)$

$$x = x(r, s, t)$$

$$y = y(r, s, t)$$

$$z = z(r, s, t)$$

State the chain rule for  $\frac{\partial g}{\partial t}$

(3 Marks)

**Question#8)** Determine the Fourier coefficient  $a_0$  for a periodic function of period 2 defined by

$$f(t) = \begin{cases} 4(1+t) & -1 < t < 0 \\ 0 & 0 < t < 1 \end{cases}$$

**Question#9)** Evaluate  $\int_1^4 \int_0^2 (6x^2 + 4xy^3) dx dy$  (5 Marks)

$$\int_0^{\frac{\pi}{2}} \int_0^{\sin \theta} r \cos \theta dr d\theta$$

**Question#10)** Evaluate the following double integral

**(5 Marks)**

**Question#11)** Evaluate the following line integral with respect to arc-length  $s$

$$\int_C \left( \frac{1}{1+x} \right) ds \quad \text{where } C \text{ is the curve } x=t, \quad y=\frac{2}{3}t^{\frac{3}{2}} \quad \text{and} \quad 0 \leq t \leq 3 \quad \text{(5 Marks)}$$

**Question#12 )** Determine whether the following vector field  $\vec{F}$  is conservative or not.

$$\vec{F}(x, y, z) = (4x - z)\hat{i} + (3y + z)\hat{j} + (y - x)\hat{k} \quad \text{(5 Marks)}$$

Calculus II (MTH301) Question: 1 (Marks: 1) Attempted Questions: 0 Total Questions: 52

Match the vector-valued function with its graph.  
 $r(t) = (a \cos t)\hat{i} + (a \sin t)\hat{j} + (ct)\hat{k}$  where  $a$  and  $c$  are positive constants and  $0 \leq t \leq 2\pi$

- Choices:
- 
  - 
  - 
  - 

TIME LEFT: 120 [Progress Bar] [Info] [Back] [Forward] [Next] [Last Question]

Calculus II (MTH301) Question: 2 (Marks: 1) Attempted Questions: 1 Total Questions: 52

Match the following vector-valued function with its graph.  
 $r(t) = t\hat{i} + t^2\hat{j} + t^3\hat{k}$  and  $t \geq 0$

- Choices:
- 
  - 
  - 
  - 

TIME LEFT: 119 [Progress Bar] [Info] [Back] [Forward] [Next] [Save Changes]

Calculus II (MTH301)

Question: 3 (Marks: 1) Attempted Questions: 2 Total Questions: 52

What are the parametric equations that correspond to the following vector equation?

$$\vec{r}(t) = \sin^2 t \hat{i} + (1 - \cos 2t) \hat{j}$$

Choices:

$x = \sin^2 t, \quad y = 1 - \cos 2t, \quad z = 0$

$y = \sin^2 t, \quad x = 1 - \cos 2t, \quad z = 0$

$x = \sin^2 t, \quad y = 1 - \cos 2t, \quad z = 1$

$x = \sin^2 t, \quad y = \cos 2t, \quad z = 1$

TIME LEFT: 119

Calculus II (MTH301)

Question: 4 (Marks: 1) Attempted Questions: 3 Total Questions: 52

What are the parametric equations that correspond to the following vector equation?

$$\vec{r}(t) = (2t-1)\hat{i} - 3\sqrt{t}\hat{j} + \sin 3t\hat{k}$$

Choices:

$z = 2t-1, \quad x = -3\sqrt{t}, \quad y = \sin 3t$

$y = 2t-1, \quad x = -3\sqrt{t}, \quad z = \sin 3t$

$x = 2t-1, \quad z = -3\sqrt{t}, \quad y = \sin 3t$

$x = 2t-1, \quad y = -3\sqrt{t}, \quad z = \sin 3t$

TIME LEFT: 118

Calculus II (MTH301)

Question: 6 (Marks: 1) Attempted Questions: 5 Total Questions: 52

The following differential is exact  
 $dz = (x^2y + y) dx - x dy$

Choices:

True

False

TIME LEFT 116

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Calculus II (MTH301)

Question: 7 (Marks: 1) Attempted Questions: 6 Total Questions: 52

The following differential is exact  
 $dz = (x^2 + y^2) dx - 2xy dy$

Choices:

True

False

TIME LEFT 116

Calculus II (MTH301)

Question: 9 (Marks: 1)

Attempted Questions: 8 Total Questions: 52

Which one of the following is correct Wallis Cosine formula when  $n$  is even and  $n \geq 2$ ?

Choices:

$\int_0^{\pi/2} \cos^n x \, dx = \frac{(n-1)(n-3)(n-5)}{n(n-2)(n-4)} \dots \frac{6}{7} \frac{4}{5} \frac{2}{3}$

$\int_0^{\pi/2} \cos^n x \, dx = \frac{\pi}{2} \frac{(n-1)(n-3)(n-5)}{n(n-2)(n-4)} \dots \frac{5}{6} \frac{3}{4} \frac{1}{2}$

$\int_0^{\pi/2} \cos^n x \, dx = \frac{\pi}{2} \frac{(n)(n-2)(n-4)}{(n-1)(n-3)(n-5)} \dots \frac{6}{5} \frac{4}{3} \frac{2}{1}$

$\int_0^{\pi/2} \cos^n x \, dx = \frac{(n)(n-2)(n-4)}{(n-1)(n-3)(n-5)} \dots \frac{6}{5} \frac{4}{3} \frac{2}{1}$

TIME LEFT  
115

Calculus II (MTH301)

Question: 10 (Marks: 1)

Attempted Questions: 11 Total Questions: 52

Which one of the following is correct Wallis Cosine formula when  $n$  is odd and  $n \geq 3$ ?

Choices:

$\int_0^{\pi/2} \cos^n x \, dx = \frac{\pi}{2} \frac{(n-1)(n-3)(n-5)}{n(n-2)(n-4)} \dots \frac{5}{6} \frac{3}{4} \frac{1}{2}$

$\int_0^{\pi/2} \cos^n x \, dx = \frac{\pi}{2} \frac{(n)(n-2)(n-4)}{(n-1)(n-3)(n-5)} \dots \frac{6}{5} \frac{4}{3} \frac{2}{1}$

$\int_0^{\pi/2} \cos^n x \, dx = \frac{(n)(n-2)(n-4)}{(n-1)(n-3)(n-5)} \dots \frac{6}{5} \frac{4}{3} \frac{2}{1}$

$\int_0^{\pi/2} \cos^n x \, dx = \frac{(n-1)(n-3)(n-5)}{n(n-2)(n-4)} \dots \frac{6}{7} \frac{4}{5} \frac{2}{3}$

TIME LEFT  
113

Which of the following condition must be satisfied for a vector field  $\vec{F}$  to be a conservative vector field?

Choices:

$\vec{F} = 0$

$\text{grad } \vec{F} = 0$

$\text{div } \vec{F} = 0$

$\text{curl } \vec{F} = 0$

TIME LEFT  
113



What is the amplitude of a periodic function defined by  $f(x) = \sin \frac{x}{3}$  ?

Choices:

0

1

$\frac{1}{3}$

Does not exist

TIME LEFT  
112



$$f(x) = \sin \frac{x}{2}$$

What is the period of a periodic function defined by ?

Choices:

$\frac{\pi}{2}$

$\pi$

$\frac{3\pi}{2}$

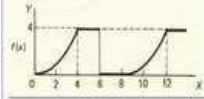
$4\pi$

TIME LEFT

111



What is the period of periodic function whose graph is as below?



Choices:

0

4

6

8

TIME LEFT

111

Navigation icons: Home, Back, Forward, Next Question, and a red stop button.

Calculus II (MTH301) Question: 18 (Marks: 1) Attempted Questions: 17 Total Questions: 52

Let  $L$  denotes the Laplace Transform.  
 $L\{F(t)\} = f(s)$   
If  $L\{t F(t)\} = f(s)$  where  $s$  is a constant, then which of the following equation holds?

Choices:

$L\{t F(t)\} = -\frac{d}{ds}\{f(s)\}$

$L\{t F(t)\} = f(s+t)$

$L\{t F(t)\} = f(s)$

$L\{t F(t)\} = \int_s^{\infty} f(s) ds$

TIME LEFT 111

Calculus II (MTH301) Question: 19 (Marks: 1) Attempted Questions: 18 Total Questions: 52

The function  $f(x) = x^3 e^x$  is .....

Choices:

Even function

Odd function

Neither even nor odd

TIME LEFT 111

Calculus II (MTH301)

Question: 21 (Marks: 1) Attempted Questions: 20 Total Questions: 52

Sign of line integral is reversed when -----

Choices:

- path of integration is divided into parts.
- path of integration is parallel to y-axis.
- direction of path of integration is reversed.
- path of integration is parallel to x-axis.

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**TIME LEFT**  
**108**

Calculus II (MTH301)

Question: 22 (Marks: 1) Attempted Questions: 21 Total Questions: 52

Let the functions  $P(x, y)$  and  $Q(x, y)$  are finite and continuous inside and at the boundary of a closed curve  $C$  in the  $xy$ -plane. If  $(P dx + Q dy)$  is an exact differential then

$\oint_C (P dx + Q dy) =$

Choices:

- Zero
- One
- Infinite

---

**TIME LEFT**  
**108**

Calculus II (MTH301)

Question: 24 (Marks: 1)

Attempted Questions: 23 Total Questions: 52

What is the value of  $L\{e^{5t}\}$  if  $L$  denotes laplace transform?

Choices:

$L\{e^{5t}\} = \frac{1}{s-5}$

$L\{e^{5t}\} = \frac{s}{s^2+25}$

$L\{e^{5t}\} = \frac{5}{s^2+25}$

$L\{e^{5t}\} = \frac{5!}{s^5}$

TIME LEFT

107



Calculus II (MTH301)

Question: 25 (Marks: 1)

Attempted Questions: 24 Total Questions: 52

What is Laplace Inverse Transform of  $\frac{5}{s^2+25}$

Choices:

$L^{-1}\left\{\frac{5}{s^2+25}\right\} = \sin 5t$

$L^{-1}\left\{\frac{5}{s^2+25}\right\} = \cos 5t$

$L^{-1}\left\{\frac{5}{s^2+25}\right\} = \sin 25t$

$L^{-1}\left\{\frac{5}{s^2+25}\right\} = \cos 25t$

TIME LEFT

106



Calculus II (MTH301)

Question: 27 (Marks: 1) Attempted Questions: 26 Total Questions: 52

$\int_C (xy) dx + y^2 dy$

Evaluate the line integral where C is the line segment from (0, 0) to (0, 3).

Choices:

- 9
- 4
- 0
- 4

TIME LEFT: 103

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Calculus II (MTH301)

Question: 28 (Marks: 1) Attempted Questions: 27 Total Questions: 52

A vector field is a vector each of whose components is a scalar field

Choices:

- True
- False

TIME LEFT: 103

Calculus II (MTH301)

Question: 30 (Marks: 1) Attempted Questions: 29 Total Questions: 52

Choices:

- An odd function
- An even function
- Neither even nor odd

**TIME LEFT**  
**103**

Calculus II (MTH301)

Question: 31 (Marks: 1) Attempted Questions: 30 Total Questions: 52

How many real numbers exist between two consecutive integers?

Choices:

- 0
- 1
- Infinite
- None

**TIME LEFT**  
**102**

The angles which a line makes with positive x, y and z-axes are known as -----

Choices:

Direction cosines

Direction ratios

Direction angles

TIME LEFT  
102



If the spherical coordinates of a point are  $(2, \frac{\pi}{4}, 0)$ , then z-coordinate in rectangular coordinate system is .....

Choices:

0

-2

2

$\sqrt{2}$

TIME LEFT  
101



Calculus II (MTH301)  
Question: 36 (Marks: 1) Attempted Questions: 35 Total Questions: 52

The direction of gradient at any point on the surface is ..... to the tangent plane at that point.

Choices:

parallel

perpendicular

opposite direction

None of these.

TIME LEFT  
100



Calculus II (MTH301)  
Question: 37 (Marks: 1) Attempted Questions: 36 Total Questions: 52

Two surfaces are said to be orthogonal at the point of their intersection if their normals at that point are .....

Choices:

Parallel

Perpendicular

In opposite direction

Overlapping

TIME LEFT  
100



Let  $x, y, z$  be the length, width and height of an open rectangular box. The surface area of the box will be .....

Choices:

$A = xy + 2yz + 2xz$

$A = yz + 4$

$A = yz + yz + zx$

$A = xyz$

TIME LEFT  
99



Double integral of a function  $f(x, y)$  represents ..... of the region between the surface defined by the function and the plane which contains its domain.

Choices:

Perimeter

Volume

Area

Circumference

TIME LEFT  
99



Calculus II (MTH301)

Question: 42 (Marks: 2)

Attempted Questions: 40 Total Questions: 52

Evaluate

$$\int_{-\pi}^{\pi} \sin nx \, dx$$

where  $n$  is an integer other than zero.

Calculus II (MTH301)

Question: 43 (Marks: 2)

Attempted Questions: 40 Total Questions: 52

Find Laplace Transform of the function  $F(t)$  if  $F(t) = t^4$

Calculus II (MTH301)

Question: 45 (Marks: 3)

Attempted Questions: 40 Total Questions: 52

Determine the fourier co-efficient  $a_0$ , of periodic function defined by  
 $f(x) = x \quad 0 < x < 1$

Calculus II (MTH301)

Question: 46 (Marks: 3)

Attempted Questions: 40 Total Questions: 52

Find curl  $\vec{F}$ , if  $\vec{F} = x^2\hat{i} + 4xy^3\hat{j} + y^3xz\hat{k}$ .

Calculus II (MTH301)

Question: 48 (Marks: 3)

Attempted Questions: 40 Total Questions: 52

Find the limit, if  $(x, y)$  approaches to  $(0, 0)$  along the line  $y = x$

$$\lim_{(x, y) \rightarrow (0, 0)} \frac{4x^2 y}{2x^4 + 3y^4}$$

Answer:

Calculus II (MTH301)

Question: 49 (Marks: 5)

Attempted Questions: 40 Total Questions: 52

Evaluate the line integral  $\int_C (x-y) dx + x dy$  along  $y^2 = x$  from the point  $(4, -2)$  to the point  $(4, 2)$

Calculus II (MTH301)

Question: 51 (Marks: 5)

Attempted Questions: 40 Total Questions: 52

Determine whether the following vector field  $\vec{F}$  is conservative or not.  
 $\vec{F}(x, y, z) = x^2 z \hat{i} + y^2 x \hat{j} + (y + 2z) \hat{k}$

Answer:

Calculus II (MTH301)

Question: 52 (Marks: 5)

Attempted Questions: 40 Total Questions: 52

Let  $f(x, y) = x^2 y - y^2$  where  $x = t^2$  and  $y = 2t$ . Use chain rule to find  $\frac{df}{dt}$  and express the answer in variable  $t$  only.

Is the following vector-valued function  $\vec{r}(t)$  continuous at  $t=1$ ? If not, why?

$$\vec{r}(t) = \left( \frac{t+1}{t-1}, t^2, 2t \right)$$

Choices:

$\vec{r}(t)$  is continuous at  $t=1$

$\vec{r}(1)$  is not defined

$\vec{r}(1)$  is defined but  $\lim_{t \rightarrow 1} \vec{r}(t)$  does not exist

$\vec{r}(1)$  is defined and  $\lim_{t \rightarrow 1} \vec{r}(t)$  exists but these two numbers are not equal.

Which one of the following is correct Wallis Sine formula when  $n$  is odd and  $n \geq 3$ ?

Choices:

$\int_0^{\pi/2} \sin^n x \, dx = \frac{\pi}{2} \frac{(n-1)}{n} \frac{(n-3)}{(n-2)} \frac{(n-5)}{(n-4)} \dots \frac{5}{6} \frac{3}{4} \frac{1}{2}$

$\int_0^{\pi/2} \sin^n x \, dx = \frac{\pi}{2} \frac{(n)}{(n-1)} \frac{(n-2)}{(n-3)} \frac{(n-4)}{(n-5)} \dots \frac{6}{5} \frac{4}{3} \frac{2}{1}$

$\int_0^{\pi/2} \sin^n x \, dx = \frac{(n-1)}{n} \frac{(n-3)}{(n-2)} \frac{(n-5)}{(n-4)} \dots \frac{6}{7} \frac{4}{5} \frac{2}{3}$

$\int_0^{\pi/2} \sin^n x \, dx = \frac{(n)}{(n-1)} \frac{(n-2)}{(n-3)} \frac{(n-4)}{(n-5)} \dots \frac{6}{5} \frac{4}{3} \frac{2}{1}$

What is the amplitude of a periodic function defined by  $f(x) = 4 \sin 2x$ ?

- Choices:
- 2
  - 4
  - 8
  - 16

TIME LEFT: 113

Navigation icons: info, back, forward, search, refresh

What is the amplitude of a periodic function defined by  $f(x) = 4 \cos 3x$ ?

- Choices:
- 1
  - 3
  - 4
  - 12

TIME LEFT: 112

Navigation icons: slider, info, back, forward, search, refresh

Calculus II (MTH301)

Question: 17 (Marks: 1)

Attempted Questions: 16 Total Questions: 52

What is the period of periodic function whose graph is as below?



Choices:

$\pi$

$-\pi$

$2\pi$

$-2\pi$

TIME LEFT

111



Calculus II (MTH301)

Question: 20 (Marks: 1)

Attempted Questions: 19 Total Questions: 52

The graph of an even function is symmetrical about -----

Choices:

x-axis

y-axis

origin

TIME LEFT

111



Calculus II (MTH301)

Question: 23 (Marks: 1) Attempted Questions: 22 Total Questions: 52

What is Laplace transform of the function  $F(t)$  if  $F(t) = t$  ?

Choices:

- $L\{t\} = \frac{1}{s}$
- $L\{t\} = \frac{1}{s^2}$
- $L\{t\} = e^{-s}$
- $L\{t\} = s$

TIME LEFT: 108

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Calculus II (MTH301)

Question: 26 (Marks: 1) Attempted Questions: 25 Total Questions: 52

Evaluate the line integral  $\int_C (xy) dx + (1+y^2) dy$  where C is the line segment from (1, 0) to (3, 0).

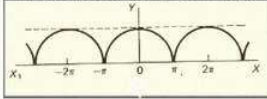
Choices:

- 4
- 0
- 4
- Do not exist

TIME LEFT: 104

Calculus II (MTH301) Question: 29 (Marks: 1) Attempted Questions: 28 Total Questions: 52

Which of the following is true for a periodic function whose graph is as below?



Choices:

Even function

Odd function

Neither even nor odd function

TIME LEFT  
103



Calculus II (MTH301) Question: 32 (Marks: 1) Attempted Questions: 31 Total Questions: 52

The axis of symmetry of the parabola  $y = -2x^2 + 4x + 1$  is .....

Choices:

$x = 2$

$x = -1$

$x = 4$

$x = 1$

TIME LEFT  
102



Calculus II (MTH301)

Question: 35 (Marks: 1) Attempted Questions: 34 Total Questions: 52

The function  $f(x, y) = \sqrt{y-x}$  is continuous in the region ----- and discontinuous elsewhere.

Choices:

- $x \neq y$
- $x \leq y$
- $x > y$
- $x \geq y$

TIME LEFT: 101

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Calculus II (MTH301)

Question: 38 (Marks: 1) Attempted Questions: 37 Total Questions: 52

For a function to have a relative extremum at a point C, the point must be a .....

Choices:

- Saddle point
- Critical point
- Negative point
- Stationary point

TIME LEFT: 100

Calculus II (MTH301)  
 Question: 41 (Marks: 2) Attempted Questions: 40 Total Questions: 52

Let the functions  $P(x, y)$  and  $Q(x, y)$  have continuous first partial derivatives inside and the boundary  $C$  of a region  $R$  in the  $xy$ -plane. State the condition when the line

$$\int_C (P \, dx + Q \, dy)$$

integral is independent of path.

---

Answer:

Calculus II (MTH301)  
 Question: 44 (Marks: 2) Attempted Questions: 40 Total Questions: 52

Find the domain of  $f(x, y)$  where  $f(x, y) = xe^{x^2+5xy+y^3}$ .

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Calculus II (MTH301)  
 Question: 47 (Marks: 3) Attempted Questions: 40 Total Questions: 52

Define the periodic function whose graph is shown below.

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Calculus II (MTH301)  
 Question: 50 (Marks: 5) Attempted Questions: 40 Total Questions: 52

Determine the fourier co-efficient  $b_n$  of the following periodic function.

$$f(x) = x \quad 0 < x < 1$$

## MTH301 Final Term Paper shared by Student

by [Anjum Amjad](#) on February 28, 2016 at 3:20pm

paper bohat asan tha 95% past paper me se tha except Laplace transform because wo lecture exclude h gaye thay

me ne Q bhi post krne the but mere sath bad luck hui bez during my paper i have change 3 PCs bez kisi ka mouse sahi nhi tha kisi ka keyboard saho kam nhi kerta tha bht mushkil se operate kya aur isi wajah se mere Q bhi Miss ho gaye

kuch Qs yad han wo share kr deta hon

double integral tha with limits asan tha but I miss due to above reason

divergent vector me se tha 2 Q thay

curl vector se bhi tha 2 Q thay

critical point ka bhi 1 Q tha

arc length se bhi 2 Q thay

1 parabola ka tha symmtry btani thi

please mujhe koi btae k Complain kis ko krni ha head office me email address btaen.?

bez jo mere sath hua wo kisi aur k sath na ho my campus is VLHR01

## MTH301 Final Term Paper shared by Student

on February 29, 2016 at 11:17pm

40 to 50% paper, from past papers.

graph say related questions b thay MCQS main aur subjective main b.

So don't rely on only past papers....Best of Luck.

paper bohat asan tha 95% past paper me se tha except Laplace transform because wo lecture exclude h gaye thay

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Q bhi Miss ho gaye

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curl vector se bhi tha 2 Q thay

critical point ka bhi 1 Q tha

arc length se bhi 2 Q thay

1 parabola ka tha symmtry btani thi

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**MTH301 Final Term Paper shared by Student**

Q 1. Find Laplace transform  
(2 marks)  $F(t) = \sin 2t$

Q 2. Wallis Sine theorem  
(2 marks)  $\int_0^{\frac{\pi}{2}} \sin^5 x \, dx$

Q 3. Find a, b  
(2 marks)  $a = 3\hat{i} - 2\hat{j} + \hat{k}$   
 $b = 4\hat{i} + 5\hat{j} - 2\hat{k}$

Q 4. Give Equation of Curve  
(2 marks)  $X = 3x$   
 $Y = 3x^2$   
For which values of  $y$  these curves intersect each other.

Q 5. Find Laplace Transform  
(3 marks)  $F(t) = e^{it} \sin 3t$

Q 6.  $g = f(x)$   
(3 marks)  $x = x(r, s)$   
(Chain Rule for  $\frac{\partial}{\partial r}, \frac{\partial g}{\partial s}$ )

Note: Some mistakes but same paper + 8% plus

Q7 Arc length of the  
(3 marks) curve

$$\vec{r}(t) = a \cos t \hat{i} + a \sin t \hat{j}$$

when  $0 \leq t \leq \pi$

Q8  
(3 marks)

$$\frac{1}{2} \int_0^{\pi} (\sin^3 x + \sin^4 x) dx$$

Q9  $\int_C v(\vec{r}) dt$   
(5 marks)  $v(x, y, z) = xyz$

Over curve given by

$$\vec{r}(t) = 3t^2 \hat{i} + t \hat{j} + t^4 \hat{k}$$

$0 < t < 2$

Q10  $\int_C y dx + (x+y) dy$   
(5 marks) along  $y = x^2 + 2x$

From the point (0,0) to the  
point (2,8)

I MAYBE

WRONG

But mostly I am correct 97%

(Q) 11

(5 marks)  $f(x, y) = \frac{\sin x}{y}$

$$x = s^2 - t$$

$$y = s + e^t$$

Find  $\frac{\partial f}{\partial s}$

Simplifying as function  
of  $s$  and  $t$

---

Q12 Fourier coefficient bn  
of Periodic Function  
(5 marks)

$$f(x) = x$$

$$0 < x < 1$$

# MTH301 Final Term Paper shared by Student

[mohsen eman](#) on August 26, 2014 at 11:30pm

THIS IS PAPER OF M.TARIQ BHAI.VERY OLD SHARE (from 2011)

BUT REALLLY AWSOME HERE:

Mth301 Calculus 2  
11-feb-2012 Paper

Q1.Evalute the double integral

Q2. Check whether the function has relative minima or relative maxima

Yaha per sub kuch diya gaya hai jese bus hame equate ker k maloom kerna hai kya hai ye either maxima or minama

Q3.find the curl of the vector function examples of page 174 handout

Lecture 34.

Q4. Line integral se aik question aaya tha lecture 31 page 159,160 handout

Q5.wallis sine formula

Q6 periods se question bohat saray the.

Q7.check whether the function is even or odd

Q8. find the limit of the function of 3 variable xyz

Q9.  $r(t) = (\cos t)\mathbf{i} + (\sin t)\mathbf{j} + 2\mathbf{k}$   $0 \leq t \leq 2\pi$

Mcqs

1. Lecture 27 k saray graph hai wo sub k graph or equations yad ker le us me se mere 3 4 mcqs aaye the sirf graph select kerna tha ya graph diya gaya tha equation select kerni thi
2. is that exact differential or not true or false tha

3. Periods se 8 10 mcqs aaye the hame ye select kerna tha k iski equation kya hogi jo image di gae hai uska amplitude kya hai, uska uska period kya hai yani is tarah se question aaye the
4. fourier series se mcqs aaye the
5. check where function is even or odd
6. laplace correction se 2 mcqs aaye the
7. wallis sine formula se 2 mcqs aaye the

## MTH301 Final Term Paper shared by Student

[mohsen eman](#) on August 30, 2014 at 1:16am

Dera ghazi khan

28 august 8:00

Subjective

First 4 questions of 2 marks

1 was about laplace teorem

2 was I think about laplace theorem

3 was to evaluate integral.also something about line segment was written

4 was to use wallis theorem

Then 4 questions of 3 marks

1.Find new integral after order is changed

2. $F(t) = e^{2t} \sin 3t$  then find laplace

3.Is this exact or not.dont remember what

4.Question about curl.

Then 4 questions of 5 marks

1.fourier series

2.also fourier series

3.chain rule

4.Evaluate integral

## MTH301 Final Term Paper shared by Student

[mohsen eman](#) on August 30, 2014 at 1:23am

ALSO

MCQs TOTAL WERE 40

There were 4 graph questions

A question of odd function

There were 3 about Laplace transform

And 2 about Laplace inverse transform

1 about domain

1 coordinate related

1 octant related

If  $f(x) =$  so and so then so and so

1 was about disk equation

Equation related to who?euler, gausis,laplace or strokes

1 about derivative

1 about absolute extrema

1 about doubal integral

3 on polar equation (radius,angle)

I was about integral of sum of partial derivatives

I was about vectors

I was for defining integral of partial derivative

Derivative was given find vector value function such that function is continuous

Derivative of vector value function

Find integral

Integral of circular path

When is vector field value constant

I think one was to find line integral of a scalar with respect to vector

I was about wallis sine

Hope these suffice for you J

## MTH301 Final Term Paper shared by Student

MTH301 – Calculus 2

Fall 2012 Final term Current Paper

03/Feb/2012

**Total 52**  
**40 mcqs**  
**12 questions**

**Question No: 01**

Prove whether the following function is even, odd or neither.

$$f(x) = x^3 + 4x$$

**Question No: 02**

Find  $\text{curl } \vec{F}$ , if  $\vec{F} = (3x + y)\hat{i} + xy^2z\hat{j} + (xz^2)\hat{k}$

**Question No: 03**

Determine the fourier co-efficient  $a_0$  of the following function.

$$f(x) = x^2 \quad 0 < x < 2\pi$$

**Question No: 04**

$$\int_C \frac{1}{1+x} ds, \quad x=t, y=\frac{2}{3}t^{\frac{3}{2}}, 0 \leq t \leq 3$$

Compute where C is the curve

**Question No: 05**

$$\oint_C \vec{F} d\vec{r},$$

Use Stokes theorem to evaluate the integral

where  $\vec{F} = 2z\hat{i} + 3x\hat{j} + 5y\hat{k}$ , C is the circle  $x^2 + y^2 = 1$

In the xy-plane with counter clockwise orientation looking down the positive z-axis.

**Question No: 06**

Given  $\vec{F} = x^2\hat{i} - 2\hat{j} + yz\hat{k}$ . Find  $\text{div}(\text{Curl } \vec{F})$ .

**Question No: 07**

Determine the Fourier coefficients  $a_0, a_n$  and  $b_n$  for a periodic function of period  $2\pi$  defined by

$$f(x) = \begin{cases} -x & -\pi \leq x < 0 \\ 0 & 0 \leq x < \pi \end{cases}$$

Question No: 08

$$\left( \sqrt{3}, \frac{\pi}{3}, \frac{\pi}{2} \right)$$

Consider the point  $\left( \sqrt{3}, \frac{\pi}{3}, \frac{\pi}{2} \right)$  in spherical coordinate system. Find the rectangular coordinates of this point.

**Baki question ziyada tar Periodic equation se aye the is k ilawa parametric equation or wallis formula or fourier series se aye the or 1 do the baki MCQs toh sab new the koi bhi past paper se nahi aya tha!**

## MTH301 Final Term Paper shared by Student

on February 11, 2012 at 10:46pm

Mth301 Calculus 2  
11-feb-2012 Paper

Q1. Evaluate the double integral

Q2. Check whether the function has relative minima or relative maxima

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Q3. find the curl of the vector function examples of page 174 handout

Lecture 34.

Q4. Line integral se aik question aaya tha lecture 31 page 159,160 handout

Q5. wallis sine formula

Q6. periods se question bohat saray the.

Q7. check whether the function is even or odd

Q8. find the limit of the function of 3 variable xyz

Q9.  $r(t) = (\cos t)i + (\sin t)j + 2k$   $0 \leq t \leq 2\pi$

Mcqs

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4. fourier series se mcqs aaye the
5. check where function is even or odd
6. laplace correction se 2 mcqs aaye the
7. wallis sine formula se 2 mcqs aaye the

## MTH301 Final Term Paper 2012 shared by Student

Q1. Evaluate the double integral  $\iint f(x) dx dy$

Q2. Check whether the function has relative minima or relative maxima

Yaha per sub kuch diya gaya hai jese  $f_{xx}$   $f_{yy}$   $f_{xy}$   $f_{yx}$  bus hame equate ker k maloom kerna hai kya hai ye either maxima or minama

Q3. find the curl of the vector function examples of page 174 handout

Lecture 34.

Q4. Line integral se aik question aaya tha lecture 31 page 159,160 handout

Q5. wallis sine formula  $\int \sin^6 x dx$

Q6. periods se question bohat saray the.

Q7. check whether the function is even or odd

Q8. find the limit of the function of 3 variable xyz

Q9.  $r(t) = (\cos t)i + (\sin t)j + 2k$   $0 \leq t \leq 2\pi$

## Mcqs

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