



Dashboard > Courses > School Of Engineering & Applied Sciences > B.Tech. > B.Tech. Cohort 2021-2025 > Semester-I Cohort 2021-25 > EPHY105L-Odd Semester 2021 > General > Mock-test

Started on	Friday, 24 December 2021, 10:40 AM
State	Finished
Completed on	Friday, 24 December 2021, 10:50 AM
Time taken	9 mins 35 secs
Grade	2.00 out of 4.00 (50%)

## Question 1

Not answered

Marked out of

1.00

The electric field intensity at a point situated 4 metres from a point charge is 200 N/C. If the distance is reduced to 2 metres, the field intensity will be

#### Select one:

- a. 1200 N/C
- b. 800 N/C
- c. 600 N/C
- d. 400 N/C

Your answer is incorrect.

The correct answer is: 800 N/C

Question Z	Find the Cartesian coordinate of the following point in polar coordinate system:
Not answered	$(2,\pi/2)$
Marked out of	
1.00	Select one:
	a. (2,0)
	O b. (-2,0)
	o c. (0,-2)
	o d. (0,2)
	Your answer is incorrect.
	The correct answer is: (0,2)
Question 3	A thin metal sphere of radius $\emph{\textbf{R}}$ has charge $\emph{\textbf{Q}}$ . What is its capacitance?
Mark 1.00 out of	Select one:
1.00	$\bigcirc$ a. $2\pi\epsilon_0$ R
	$\bigcirc$ b. $8\pi\epsilon_0$ R
	$\bigcirc$ c. $6\pi\epsilon_0$ R
	$_{\odot}$ d. $4\pi\epsilon_0$ R
	✓
	Your answer is correct.

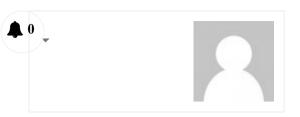
The correct answer is:  $4\pi\epsilon_0$ R

Question 4	An electric dipole is placed at an angle of 30 $^{\circ}$ with an electric field intensity 2×10 $^{\circ}$ N/C. It
Correct	experiences a torque equal to 4 N-m. If the dipole length is 2 cm, what is the charge on the
Mark 1.00 out of	dipole?
1.00	
	Select one:
	○ a. 7 mC
	○ b. 5 mC
	O d 8 mC

Your answer is correct.

The correct answer is: 2 mC





Dashboard > Courses > School Of Engineering & Applied Sciences > B.Tech. > B.Tech. Cohort 2021-2025 > Semester-I Cohort 2021-25 > EPHY105L-Odd Semester 2021 > General > Mock-test2

Started on	Saturday, 8 January 2022, 3:36 PM
State	Finished
Completed on	Saturday, 8 January 2022, 3:45 PM
Time taken	9 mins 1 sec
Grade	<b>4.00</b> out of 4.00 ( <b>100</b> %)

### Question 1

Correct

Mark 1.00 out of

1.00

The electric field intensity at a point situated 4 metres from a point charge is 200 N/C. If the distance is reduced to 2 metres, the field intensity will be

#### Select one:

- a. 800 N/C
- b. 400 N/C
- c. 600 N/C
- d. 1200 N/C

Your answer is correct.

The correct answer is: 800 N/C

Question 2 Correct Mark 1.00 out of 1.00	A charge Q is enclosed by a Gaussian spherical surface of radius R. If the radius is doubled, then the outward electric flux will:  Select one:  a. be reduced to half
	<ul><li>b. remains the same </li><li>c. increase four times</li><li>d. be doubled</li></ul>
	Your answer is correct. The correct answer is: remains the same
Question 3 Correct Mark 1.00 out of 1.00	An electric dipole is placed at an angle of 30° with an electric field intensity 2×10 <sup>5</sup> N/C. It experiences a torque equal to 4 N-m. If the dipole length is 2 cm, what is the charge on the dipole?  Select one:
	<ul> <li>a. 8 mC</li> <li>b. 5 mC</li> <li>c. 7 mC</li> <li>d. 2 mC ✓</li> </ul>
	Your answer is correct. The correct answer is: 2 mC

# Question $\bf 4$

Correct

Mark 1.00 out of

1.00

What is the magnitude of the curl of  $\vec{E}$  for  $\vec{B}$  = 15t $\hat{z}$ ?

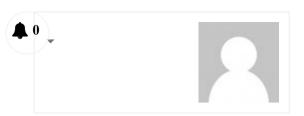
Select one:

- a. -15 ✓
- b. -7.5
- c. 15
- d. 7.5

Your answer is correct.

The correct answer is: -15





Dashboard > My courses > EPHY105L-Odd Semester 2021 (EB16-EB21) > 28 October - 3 November > Quiz 5

Started on Monday, 1 November 2021, 4:28 PM

**State** Finished

Completed on Monday, 1 November 2021, 4:35 PM

**Time taken** 6 mins 50 secs

**Grade 0.00** out of 2.00 (0%)

## Question 1

Incorrect

Mark 0.00 out of

2.00

Find line integral for the function  $ec{v}=xy^2\hat{x}+yx^2\hat{y}$  from point A(0,0,0) to point B(4,4,0).

Answer: 2.2

The correct answer is: 128.00





Dashboard > My courses > EPHY105L-Odd Semester 2021 (EB16-EB21) > 7 October - 13 October > Quiz-2

Started on Monday, 11 October 2021, 4:29 PM

**State** Finished

Completed on Monday, 11 October 2021, 4:35 PM

**Time taken** 5 mins 58 secs

**Grade 0.00** out of 1.00 (0%)

## Question 1

Incorrect

Mark 0.00 out of

1.00

Evaluate  $\vec{
abla}.\,(\vec{
abla} imes\vec{v}), ext{ where } \vec{v} ext{ is of the form } \vec{v}=4x^2y\hat{i}\,+1xyz\hat{k}$ 

Answer: 4

The correct answer is: 0





Dashboard > My courses > EPHY105L-Odd Semester 2021 (EB16-EB21) > 14 October - 20 October > Quiz-3

Started on Monday, 18 October 2021, 4:29 PM

**State** Finished

Completed on Monday, 18 October 2021, 4:35 PM

**Time taken** 5 mins 47 secs

**Grade 0.00** out of 1.00 (0%)

## Question 1

Incorrect

Mark 0.00 out of

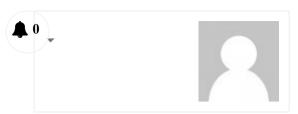
1.00

Find the Laplacian of  $T(x,y,z)=x^2y+y^2x+xyz$  at point P(4,4,4).

Answer: 576

The correct answer is: 16





Dashboard > My courses > EPHY105L-Odd Semester 2021 (EB16-EB21) > 21 October - 27 October > Quiz-4

Started on Thursday, 21 October 2021, 2:19 PM

**State** Finished

Completed on Thursday, 21 October 2021, 2:25 PM

**Time taken** 5 mins 28 secs

**Grade 0.00** out of 1.00 (0%)

## Question 1

Incorrect

Mark 0.00 out of

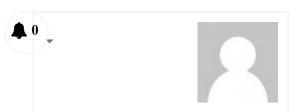
1.00

Find the  $\phi$  coordinate (in degree) corresponding to a point described in Cartesian coordinate as (3,3,0).

Answer: 90

The correct answer is: 44.98





Dashboard > My courses > EPHY105L-Odd Semester 2021 (EB16-EB21) > 18 November - 24 November > Quiz-7

Started on Thursday, 18 November 2021, 2:18 PM

**State** Finished

Completed on Thursday, 18 November 2021, 2:27 PM

Time taken 8 mins 52 secs

**Grade 2.00** out of 2.00 (100%)

## Question 1

Correct

Mark 1.00 out of

1.00

The following vector can represent an electric field:  $\vec{E}_1=xy\hat{x}+yz\hat{y}+xz\hat{z}$  . Is this statement true or false?

Select one:

True

False

The correct answer is 'False'.

# Question $\bf 2$

Correct

Mark 1.00 out of 1.00 Suppose the electric field in some region is found to be  $\vec{E}=kr^3\hat{r}$ . Find the charge density  $\rho$ . (Hint: Use the expression for divergence of an electric field in spherical polar coordinate.)

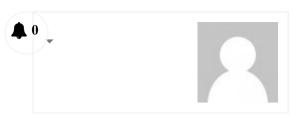
Select one:

- igcap a.  $kr^4$
- lacksquare b.  $5\epsilon_0 k r^2$ 
  - **4**
- $igcup c. \, 5\epsilon_0 k r^4$
- $igcup d. \ 3k\epsilon_0$

Your answer is correct.

The correct answer is:  $5\epsilon_0 kr^2$ 





Dashboard > My courses > EPHY105L-Odd Semester 2021 (EB16-EB21) > 18 November - 24 November > Quiz-8

Started on Monday, 22 November 2021, 4:30 PM

**State** Finished

Completed on Monday, 22 November 2021, 4:35 PM

**Time taken** 4 mins 45 secs

**Grade 1.00** out of 1.00 (100%)

## Question 1

Correct

Mark 1.00 out of

1.00

A charge 1 nC (  $1nc=10^{-9}C$  ) is placed at a point (3,0,0). Calculate the potential difference due to this charge between two points (0,-3,0) and (0,3,0).

Answer: 0

The correct answer is: 0.0





Dashboard > My courses > EPHY105L-Odd Semester 2021 (EB16-EB21) > 2 December - 8 December > Quiz-9

Started on Thursday, 2 December 2021, 2:20 PM

State Finished

Completed on Thursday, 2 December 2021, 2:24 PM

Time taken 3 mins 55 secs

**Grade 1.00** out of 1.00 (100%)

#### Question 1

Correct

Mark 1.00 out of

1.00

We have one point charge +q each on three corners of a square of side 'a'. Calculate the work done in order to bring another charge +q on the fourth corner of the square.

Select one:

$$\bigcirc$$
 a.  $rac{q^2}{4\pi\epsilon_0 a}(2-rac{1}{\sqrt{2}})$ 

b. 
$$rac{q^2}{4\pi\epsilon_0 a}(2+rac{1}{\sqrt{2}})$$

1

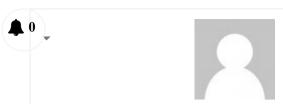
$$igcup c. rac{q^2}{4\pi\epsilon_0 a}(-2+rac{1}{\sqrt{2}})$$

$$\bigcirc$$
 d.  $-rac{q^2}{4\pi\epsilon_0 a}(2+rac{1}{\sqrt{2}})$ 

Your answer is correct.

The correct answer is:  $rac{q^2}{4\pi\epsilon_0 a}ig(2+rac{1}{\sqrt{2}}ig)$ 





Dashboard > My courses > EPHY105L-Odd Semester 2021 (EB16-EB21) > 2 December - 8 December > Quiz-10

Started on Monday, 6 December 2021, 4:30 PM

State Finished

Completed on Monday, 6 December 2021, 4:35 PM

**Time taken** 4 mins 42 secs

**Grade 1.00** out of 1.00 (100%)

## Question 1

Correct

Mark 1.00 out of

1.00

In a certain region of space the electrostatic potential is given by

$$V(x,y)=2xy+4y+5y^2$$
 . The electric field will be zero at

Select one:

a. x = 0, y = -1/3

ⓑ b. x = -2, y = 0 ✓

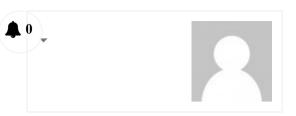
o. x = 0, y = 0

d. x = +2, y = 0

Your answer is correct.

The correct answer is: x = -2, y = 0





Dashboard > My courses > EPHY105L-Odd Semester 2021 (EB16-EB21) > 9 December - 15 December > Quiz-11

Started on Thursday, 9 December 2021, 2:20 PM

State Finished

Completed on Thursday, 9 December 2021, 2:25 PM

Time taken 4 mins 51 secs

**Grade 1.00** out of 1.00 (100%)

#### Question 1

Correct

Mark 1.00 out of 1.00 We have a spherical shell with inner and outer radius of 'a' and 'b' respectively. It is carrying charge -Q. Inisde the spherical shell we have suspended a solid conducting sphere carrying charge +2Q. What are the magnitude of the electric fields ( $|\vec{E}(\vec{r})|$ ) at ~a < r < b~ and ~r > b~ respectively?

Select one:

$$igcap a.~0, rac{Q}{4\pi\epsilon_0 r^2}$$

**4** 

b. 
$$-rac{Q}{4\pi\epsilon_0 r^2}, rac{2Q}{4\pi\epsilon_0 r^2}$$

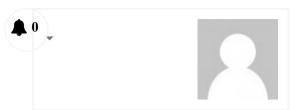
$$igcap {
m c.} -rac{Q}{4\pi\epsilon_0 r^2}, rac{Q}{4\pi\epsilon_0 r^2}$$

$$\bigcirc$$
 d.  $-rac{Q}{4\pi\epsilon_0 r^2}, rac{3Q}{4\pi\epsilon_0 r^2}$ 

Your answer is correct.

The correct answer is:  $0, \frac{Q}{4\pi\epsilon_0 r^2}$ 





Dashboard > My courses > EPHY105L-Odd Semester 2021 (EB16-EB21) > 9 December - 15 December > Quiz-12

Started on Monday, 13 December 2021, 4:30 PM

**State** Finished

Completed on Monday, 13 December 2021, 4:35 PM

Time taken 4 mins 38 secs

**Grade 1.00** out of 1.00 (100%)

#### Question 1

Correct

Mark 1.00 out of 1.00 A positive charge Q=8 mC is placed inside a spherical conducting shell with inner radius a and outer radius b which has an extra charge of 4 mC placed somewhere on it. When all motion of charges ends, find the charges on the inner and outer surfaces of the shell.

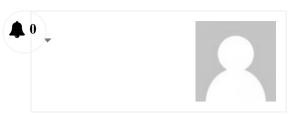
#### Select one:

- a. Inner charge = −8 mC, Outer charge = 12 mC
- b. Inner charge = +8 mC, Outer charge = -8 mC
- c. Inner charge = -8 mC, Outer charge = +8 mC
- d. Inner charge = +8 mC, Outer charge = -12 mC

Your answer is correct.

The correct answer is: Inner charge = -8 mC, Outer charge = 12 mC





Dashboard > My courses > EPHY105L-Odd Semester 2021 (EB16-EB21) > 16 December - 22 December > Quiz-13

Started on Thursday, 16 December 2021, 2:20 PM

State Finished

Completed on Thursday, 16 December 2021, 2:26 PM

**Time taken** 5 mins 46 secs

**Grade 0.00** out of 2.00 (**0**%)

#### Question 1

Incorrect

Mark 0.00 out of

1.00

A dielectric sphere carries a uniform polarisation given by  $\vec{P}=-P_0\hat{k}$ . The bound surface charge density on the surface of the sphere

#### Select one:

 $\ \ \,$  a. Non-zero and positive for z>0 and negative for z<0



- ullet b. Non-zero and negative for z>0 and positive for z<0
- c. Non-zero and uniform over the surface of the sphere
- d. Zero on the surface of the sphere

Your answer is incorrect.

The correct answer is: Non-zero and negative for z>0 and positive for z<0

#### Question 2

Incorrect

Mark 0.00 out of

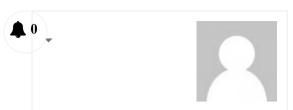
1.00

A dielectric sphere has a polarisation  $\vec{P}=2.6\vec{r}$ . Calculate the resultant volume bound charge density.

Answer: 0

The correct answer is: -7.80





Dashboard > My courses > EPHY105L-Odd Semester 2021 (EB16-EB21) > 30 December - 5 January > Quiz-14

Started on Thursday, 6 January 2022, 2:17 PM

State Finished

Completed on Thursday, 6 January 2022, 2:25 PM

**Time taken** 7 mins 42 secs

**Grade 1.00** out of 3.00 (33%)

#### Question 1

Incorrect

Mark 0.00 out of

2.00

Calculate the ratio of electric field strengths at points (0,0,3) and (3,0,0) due to a dipole of dipole moment  $p_0$  oriented along the z-axis.

Answer: 0.5

×

The correct answer is: 2.0

### Question 2

Correct

Mark 1.00 out of

1.00

The electric flux entering and leaving an enclosed surface are represented by  $\phi_1$  and  $\phi_2$  respectively. Find the electric charge inside the surface.

Select one:

$$igcap$$
 a.  $(\phi_2-\phi_1)$ 

$$lacksquare$$
 b.  $\epsilon_0(\phi_2-\phi_1)$ 



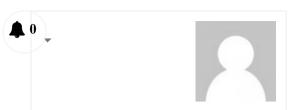
C. 
$$\frac{\epsilon_0}{(\phi_2-\phi_1)}$$

$$\bigcirc$$
 d.  $rac{\phi_2-\phi_1}{\epsilon_0}$ 

Your answer is correct.

The correct answer is:  $\epsilon_0(\phi_2-\phi_1)$ 





Dashboard > My courses > EPHY105L-Odd Semester 2021 (EB16-EB21) > 20 January - 26 January > Quiz-15

Started on Thursday, 20 January 2022, 2:20 PM

State Finished

Completed on Thursday, 20 January 2022, 2:25 PM

**Time taken** 4 mins 34 secs

**Grade 0.00** out of 1.00 (0%)

### Question 1

Incorrect

Mark 0.00 out of

1.00

The space between plates of a parallel plate capacitor is filled with dielectric material. The free charge density on the top and bottom plates are  $+\sigma$  and  $-\sigma$  respectively. Find the electric displacement  $\vec{D}$  within the dielectric slab if the surfaces of the plates are lying perpendicular to the z-axis.

Select one:

- $\bigcirc$  a.  $+\frac{\sigma}{\epsilon}\hat{k}$
- $igcup b. -\sigma \hat{k}$
- $c. -\frac{\sigma}{\epsilon}\hat{k}$
- lacksquare d.  $+\sigma\hat{k}$



Your answer is incorrect.

The correct answer is:  $-\sigma \hat{k}$ 





Dashboard > My courses > EPHY105L-Odd Semester 2021 (EB16-EB21) > 20 January - 26 January > Quiz-16

Started on Monday, 24 January 2022, 4:30 PM

**State** Finished

Completed on Monday, 24 January 2022, 4:35 PM

Time taken 4 mins 52 secs

**Grade 1.00** out of 1.00 (100%)

# Question 1

Correct

Mark 1.00 out of

1.00

Can the following vector represent a magnetic field:  $ec{F}=x^2\hat{i}+3xz^2\hat{j}-2xz\hat{k}$ ?

Select one:

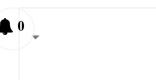
a. No

b. Yes ✓

Your answer is correct.

The correct answer is: Yes







Dashboard > My courses > EPHY105L-Odd Semester 2021 (EB16-EB21) > 27 January - 2 February > Quiz-17

Started on Thursday, 27 January 2022, 2:20 PM

State Finished

Completed on Thursday, 27 January 2022, 2:25 PM

**Time taken** 4 mins 55 secs

**Grade 1.00** out of 1.00 (100%)

### Question 1

Correct

Mark 1.00 out of 1.00 A charged particle carries electric charge,  $q=2.0\times10^{-19}\,$  C. It moves through a uniform magnetic field of magnitude 1.5 T oriented parallel to the z-axis. What is the magnetic force acting on the charged particle if it moves along x-axis at a speed  $v=5.0\times10^4\,$  m/s?

Select one:

$$_{\odot}$$
 a.  $-1.5 imes10^{-14}N\hat{j}$ 



- b. None of these options
- c. 0
- $igcup d. \ 1.5 imes 10^{-14} N \hat{j}$

Your answer is correct.

The correct answer is:  $-1.5 imes 10^{-14} N \hat{j}$