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 2

Find the Cartesian coordinate of the following point in polar coordinate system:

$$(2, \pi/2)$$

Select one:

- ○ a. (2,0)
- ○ b. (-2,0)
- ○ c. (0,-2)
- ○ d. (0,2)

Your answer is incorrect.

The correct answer is: (0,2)

Question 3

A thin metal sphere of radius R has charge Q. What is its capacitance?

Select one:

- ○ a. $2\pi\epsilon_0 R$

- ○ b. $8\pi\epsilon_0 R$

- ○ c. $6\pi\epsilon_0 R$

- ◉ d. $4\pi\epsilon_0 R$

  ✔

Your answer is correct.

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

An electric dipole is placed at an angle of 30° with an electric field intensity 2×10^5 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:

- a. 7 mC
- b. 5 mC
- c. 2 mC ✔
- 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	**4.00** out of 4.00 (**100%**)

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
- ● b. remains the same ✔
- ○ c. increase four times
- ○ d. be doubled

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 2×10^5 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:

- ○ a. 8 mC
- ○ b. 5 mC
- ○ c. 7 mC
- ● d. 2 mC ✔

Your answer is correct.

The correct answer is: 2 mC

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

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 $\vec{v} = xy^2\hat{x} + yx^2\hat{y}$ from point A(0,0,0) to point B(4,4,0).

Answer: 2.2 ✗

The correct answer is: 128.00

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 $\vec{\nabla} \cdot (\vec{\nabla} \times \vec{v})$, where $\vec{v}$ is of the form $\vec{v} = 4x^2 y \hat{i} + 1xyz\hat{k}$

Answer: 4 ✗

The correct answer is: 0

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 $T(x, y, z) = x^2 y + y^2 x + xyz$ 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 ϕ coordinate (in degree) corresponding to a point described in Cartesian coordinate as (3,3,0).

Answer: 90 ✗

The correct answer is: 44.98

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'.

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

Select one:

○ a. kr^4

⦿ b. $5\epsilon_0 kr^2$

✔

○ c. $5\epsilon_0 kr^4$

○ d. $3k\epsilon_0$

Your answer is correct.

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

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

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:

a. $\frac{q^2}{4\pi\epsilon_0 a}\left(2 - \frac{1}{\sqrt{2}}\right)$

b. $\frac{q^2}{4\pi\epsilon_0 a}\left(2 + \frac{1}{\sqrt{2}}\right)$ ✔

c. $\frac{q^2}{4\pi\epsilon_0 a}\left(-2 + \frac{1}{\sqrt{2}}\right)$

d. $-\frac{q^2}{4\pi\epsilon_0 a}\left(2 + \frac{1}{\sqrt{2}}\right)$

Your answer is correct.

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

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 ✓
- c. x = 0, y = 0
- d. x = +2, y = 0

Your answer is correct.

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

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:

- ○ a. $0, \dfrac{Q}{4\pi\epsilon_0 r^2}$

  ✓

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

- ○ c. $-\dfrac{Q}{4\pi\epsilon_0 r^2}, \dfrac{Q}{4\pi\epsilon_0 r^2}$

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

Your answer is correct.

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

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

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 $z < 0$

  ✗

- ○ 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

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: o.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 ϕ_1 and ϕ_2 respectively. Find the electric charge inside the surface.

Select one:

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

- b. $\epsilon_0(\phi_2 - \phi_1)$ ✓

- c. $\dfrac{\epsilon_0}{(\phi_2 - \phi_1)}$

- d. $\dfrac{\phi_2 - \phi_1}{\epsilon_0}$

Your answer is correct.

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

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:

○ a. $+\frac{\sigma}{\epsilon}\hat{k}$

○ b. $-\sigma\hat{k}$

○ c. $-\frac{\sigma}{\epsilon}\hat{k}$

⦿ 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: $\vec{F} = x^2\hat{i} + 3xz^2\hat{j} - 2xz\hat{k}$?

Select one:

○ a. No

◉ b. Yes ✔

Your answer is correct.

The correct answer is: Yes

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, $q = 2.0 \times 10^{-19}$ 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 $v = 5.0 \times 10^4$ m/s?

Select one:

◉   a. $-1.5 \times 10^{-14} N\hat{j}$

✔

◯   b. None of these options

◯   c. 0

◯   d. $1.5 \times 10^{-14} N\hat{j}$

Your answer is correct.

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