

#### Max. marks: 300

Date: 21.08.2022

## ABHIMANYU BATCH PHYSICS : PART TEST Topic: Electro Magnetic Induction

- 1. A closed iron ring is held horizontally and a bar magnet is dropped through the ring with its length along the axis of the ring. The acceleration of the falling magnet is
  - (a) equal tog
  - (b) less than g
  - (c) more than g
  - (d) depends on the diameter of the ring and length of magnet
- 2. Direction of current induced in a wire moving in a magnetic field is found using
  - (a) Fleming's left hand rule (b) Fleming's right hand rule
  - (c) Ampere's rule (d) Right hand clasp rule
- 3. Lenz's law is a consequence of the law of conservation of
  - (a) charge (b) energy (c) induced emf (d) induced current
- 4. The direction of induced current in the coils A and B in the situation shown in the figure is



- (a) p to q in coil A and x to y in coil B (b) q to p in coil A and x to y in coil B
- (c) p to q in coil A and y to x in coil B (d) q to p in coil A and y to x in coil B





along the common axis

5. The direction of induced current in the right loop in the situation shown by the given figure.



- (c) along xyz (d) None of these
- 6. A wire of irregular shape turning into a circular shape in a magnetic field which is directed into the paper. The direction of induced current is



(a) along abcda (b) along adcba

(c) into the plane of the paper

(a)

(d) out of the plane of the paper

7. A solenoid is connected to a battery so that a steady current flows through it. If an iron core is inserted into the solenoid, the current will

(a)	increase	(b)	decrease
(c)	remains same	(d)	first increase then decrease



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- 8. Which of the following statements is not correct?
  - (a) Whenever the amount of magnetic flux linked with a circuit changes, an emf is induced in the circuit
  - (b) The induced emf lasts so long as the change in magnetic flux continues
  - (c) The direction of induced emf is given by Lenz's law
  - (d) Lenz's law is a consequence of the law of conservation of momentum
- 9. There is a uniform magnetic field directed perpendicular and into the plane of the paper. An irregular shaped conducting loop is slowly changing into a circular loop in the plane of the paper. Then
  - (a) current is induced in the loop in the anti-clockwise direction
  - (b) current is induced in the loop in the clockwise direction

(b)

(c) ac is induced in the loop

clockwise

(a)

- (d) no current is induced in the loop
- 10. In the given figure current from A to B in the straight wire is decreasing. The direction of induced current in the loop is



(d) nothing can be said



11. As shown in the figure, a metal rod makes contact with a parallel circuit and completes the circuit. The circuit area is perpendicular to a magnetic field with B = 0.15 T. If the resistance of the total circuit is  $3\Omega$ , the firce needed to move the rod as indicated with a constant speed of 2 ms<sup>-1</sup> will be equal to



- (a)  $3.75 \times 10^{-3}$  N (b)  $2.75 \times 10^{-3}$  N (c)  $6.57 \times 10^{-4}$  N (d)  $4.36 \times 10^{-4}$  N
- 12. A copper rod of length *l* rotates about its end with angular velocity  $\omega$  in a uniform magnetic field B. The emf developed between the ends of the rod if the field is normal to the plane of rotation is
  - (a)  $B\omega l^2$  (b)  $\frac{1}{2}B\omega l^2$  (c)  $2B\omega l^2$  (d)  $\frac{1}{4}B\omega l^2$
- 13. A 2 m long metallic rod rotates with an angular frequency of 200 rad s<sup>-1</sup> about an axis normal to the rod passing through its one end. The other end of the rod is in contact with a circular metallic ring. A constant magnetic field of 0.5 T parallel to the axis exist everywhere. The emf developed between the centre and the ring is
  - (a) 100 V (b) 200 V (c) 300 V (d) 400 V
- 14. A wheel with 20 metallic spokes each of length 0.8 m long is rotated with a speed of 120 revolution per minute in a plane normal to the horizontal component of earth magnetic field H at a place. If  $H = 0.4 \times 10^{-4}$  T at the place, then induced emf between the axle and the rim of the wheel is
  - (a)  $2.3 \times 10^{-4}$  V (b)  $3.1 \times 10^{-4}$  V (c)  $2.9 \times 10^{-4}$  V (d)  $1.61 \times 10^{-4}$  V



15. The north pole of a bar magnet is rapidly introduced into a solenoid at one end (say A). Which of the following statements correctly depicts the phenomenon taking place?

- (a) No induced emf is developed
- (b) The end A of the solenoid behaves like a south pole
- (c) The end A of the solenoid behaves like north pole
- (d) The end A of the solenoid acquires positive potential
- 16. An infinitely long cylinder is kept parallel to a uniform magnetic field B directed along positive z-axis. The direction of induced current on the surface of cylinder as seen from the z-axis will be
  - (a) clockwise of the positive z-axis (b) anticlockwise of the positive z-axis
  - (c) zero (d) along the magnetic field
- 17. A conducting loop is placed in a uniform magnetic field with its plane perpendicular to the field. An emf is induced in the loop if
  - (a) it is rotated about its axis (b) it is rotated about a diameter
  - (c) it is not moved (d) it is given translational motion in the field
- 18. When a wire loop is rotated in a magnetic field, the direction of induced emf changes in every
  - (a) one revolution (b)  $\frac{1}{2}$  revolution (c)  $\frac{1}{4}$  revolution (d) 2 revolution



19. A metallic square loop ABCD is moving in its own plane with velocity v in a uniform magnetic held perpendicular to its plane as shown in figure. An electric field is induced

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		10	0	-02	0		
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- (a) in AD, but not in BC (b) in BC but not in AD
- (c) neither in AD nor in BC (d) in both AD and BC
- 20. A conductor is moving with the velocity v in the magnetic field and induced current is I. If the velocity of conductor becomes double, the induced current will be
  - (a) 0.5 I (b) 1.5 I (c) 2 I (d) 2.5 I
- 21. A circular coil expands radially in a region of magnetic field and no electromotive force is produced in the coil. This is because
  - (a) the magnetic field is constant
  - (b) the magnetic field is in the same plane as the circular coil and it may or may not vary
  - (c) the magnetic field has a perpendicular (to the plane of the coil) component whose magnitude is decreasing suitably
  - (d) both (b) and (c)
- 22. A jet plane is travelling west at the speed of 1600 km h<sup>-1</sup>. The voltage difference developed between the ends of the wing having a span of 20 m, if the earth's magnetic field at the location has a magnitude of  $5 \times 10^{-4}$  T and the dip angle is 30° is
  - (a) 4.1 V (b) 2.2 V (c) 3.2 V (d) 3.8 V



23. A rectangular loop of sides 6 cm and 2 cm with a small cut is moving out of a region of uniform magnetic field of magnitude 0.4 T directed normal to the loop. The voltage developed across the cut if velocity of loop is 2 cms<sup>-1</sup> in a direction normal to the longer side is

(a) 
$$3.8 \times 10^{-4} \, V$$
 (b)  $4.8 \times 10^{-4} \, V$  (c)  $2.2 \times 10^{-2} \, V$  (d)  $3.2 \times 10^{-2} \, V$ 

- 24. In the question number 40, if velocity is normal in the shorter side then the voltage developed is
  - (a)  $2.3 \times 10^{-4} \, V$  (b)  $2.4 \times 10^{-2} \, V$  (c)  $4.8 \times 10^{-2} \, V$  (d)  $1.6 \times 10^{-4} \, V$
- 25. The figure shows a wire sliding on two parallel conducting rails placed at a separation *l*. A magnetic field B exist in a direction perpendicular to the plane of the rails. The force required to keep the wire moving at a constant velocity v will be



(a) evB (b)  $\frac{\mu_0 Bv}{4\pi l}$  (c) Blv (d) zero



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## ABHIMANYU BATCH CHEMISTRY : PART TEST Topic: Alkyl halide

26.	Among the following, the compound which is most reactive towards alcoholic KOH is									
	(a)	$CH_2 = CHBr$	(b)	CH <sub>3</sub> COCH <sub>2</sub> CH <sub>2</sub> Br	(c)	CH <sub>3</sub> CH <sub>2</sub> Br	(d)	CH <sub>3</sub> CH <sub>2</sub> CH <sub>2</sub> Br		
27.	When 3	3-phenylpropene is	treated v	vith HBr in the preser	nce of pe	eroxide, the major pro	duct for	med is		
	(a)	1-bromo3-phenyl	propane		(b)	1,2-dibromo-3-phen	iyl propa	ine		
	(c)	2-bromo-1-phenyl	propane	2	(d)	3-(p-bromophenyl)	propene			
28.	Identify	y the compound Z is	n the rea	ction,						
	$  \rightarrow                                  $									
	(a)	H X	(b)	H H	(c)	$\mathbf{x}$	(d)	All of these		
29.	Which	one of the followin	g is a Sv	varts reaction?						
	(a)	$CH_3Br + NaI$	etone → CH	$I_{3}I + NaBr$	(b)	$CH_3Cl + NaI \xrightarrow{Acetone} CH_3I + NaCl$				
	(c)	$CH_3Br + AgF$	$\rightarrow CH_3F$	+ AgBr	(d)	$2CH_3Cl + 2Na$	$\xrightarrow{\text{y ether}} C$	$H_3 \cdot CH_3 + 2NaCl$		
30.	The ma	in product formed	by the re	action of propane wi	th chlori	ne at 25°C in the pres	ence of s	sunlight is		
	(a)	1-chloropropane	(b)	2-chloropropane	(c)	chloroethane	(d)	chloromethane		
31.	The pro	oduct of reaction be	tween al	coholic silver nitrile	with eth	yl bromide is				
	(a)	ethene	(b)	ethane	(c)	ethyl nitrile	(d)	nitro ethane		
32.	Tert-bu	ıtyl chloride prefera	bly unde	ergo hydrolysis by						
	(a)	S <sub>N</sub> 1 mechanism	(b)	S <sub>N</sub> 2 mechanism	(c)	Both of (a) and (b)	(d)	None of these		
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33.	In the	following sequence	of react	ions,							
	C <sub>2</sub> H <sub>5</sub> B	$3r \xrightarrow{AgCN} X \xrightarrow{Redu}$	$\xrightarrow{\text{tion}} Y;$	Y is							
	(a)	n-propylamine	(b)	iso-propyl amine	(c)	ethylamine	(d)	ethyl methyl amine			
34	The re	activates of CH <sub>2</sub> Cl	СН₂СН	CH2Cl and C4H4Cl s	are in the	order					
54.	(a)	$CH_3Cl > CH_3CH_2$	$CH_2Cl >$	> C6H5Cl	(b)	$CH_3CH_2CH_2CI > 0$	CH₃Cl>	C_H_C]			
	(c)	$C_6H_5Cl > CH_3CH$	$_2CH_2Cl$	> CH <sub>3</sub> Cl	(d)	$CH_{3}Cl > C_{6}H_{5}Cl >$	· CH <sub>3</sub> CH	<sub>2</sub> CH <sub>2</sub> Cl			
25	Which of one of the following species will most readily presend through $S_1$ reaction?										
55.	Which of one of the following species will most readily proceed through $S_N 2$ reaction?										
	(a)	✓ <sup>Cl</sup>	(b)	CI	(c)	$\bigcup_{i=1}^{n}$	(d)				
36.	CH <sub>3</sub> – becaus	$CH_2 - Br$ on treatme	nent wit	h LiAlH <sub>4</sub> gives ethar	ne gas w	hile (CH <sub>3</sub> ) <sub>3</sub> C – Br o	n same t	reatment gives H <sub>2</sub> gas			
	(a)	The former is S <sub>N</sub> 2	and late	er is E2 reaction	(b)	The former is E2 a	and later	is $S_N 2$ reaction			
	(c)	The former is $S_N I$	and late	er is E2 reaction	(d)	The former is E2 a	and later	is S <sub>N</sub> 1 reaction			
37.	Alkyl	chloride is prepared	l by pass	ing theA gas th	rough so	olution of alcohol. He	ere, A ref	ers to			
	(a)	$H_2SO_4$	(b)	Cl <sub>2</sub>	(c)	dry HCl	(d)	None of these			
38.	Reaction	on of tert-butyl brom	mide wit	h aqueous sodium hy	droxide	follow					
	(a)	S <sub>N</sub> 1 mechanism									
	(b)	S <sub>N</sub> 2 mechanism									
	(c)	Any of the above	two dep	ending upon tempera	ture of r	eaction					
	(d)	Saytzeff rule									



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39.	The op	e optically inactive compound from the following is										
	(a)	2-chloropentane			(b)	2-chloropropanal						
	(c)	2-chloro-2-methy	lbutane		(d)	2-chlorobutane						
40.	Ethyl	iodide when heated	with soc	lium in dry ether give	s pure							
	(a)	$C_4 H_{10}$	(b)	$C_2H_6$	(c)	$C_3H_8$	(d)	C <sub>2</sub> H <sub>5</sub> OH				
41.	Identif	fy Z, in the followin	ig reaction	ons.								
	$C_2H_5I \xrightarrow{Alc.KOH} X \xrightarrow{Br_2} Y \xrightarrow{KCN} Z$											
	(a)	CH <sub>3</sub> CH <sub>2</sub> CN	(b)	$NCCH_2 - CH_2CN$	(c)	$BrCH_2-CH_2CN$	(d)	BrCh = CHCN				
42.	Reacti	vity order of halide	s for deh	ydrohalogenation is								
	(a)	R - F > R - Cl > I	R - Br >	→ R – I	(b)	R-I > R-Br > R	-Cl > R	- F				
	(c)	R-I > R-Cl > F	R - Br >	R - F	(d)	R-F > R-I > R-	Br > R	– Cl				
43.	Consi	der the following rea	action,									
	$H_2C =$	$= CH_2 + Br_2 \xrightarrow{A} B$	BrCH <sub>2</sub> CH	H <sub>2</sub> Br								
	The re	eactant 'A' and color	ur of 'B'	and 'C' are respectiv	vely							
	(a)	$A \rightarrow CCl_4; B \rightarrow c$	colourles	ss; $C \rightarrow$ reddish brow	n							
	(b)	$A \rightarrow CCl_4; B \rightarrow r$	reddish b	prown; $C \rightarrow colourles$	s							
	(c)	$A \rightarrow CBr_4; B \rightarrow c$	colourles	ss; $C \rightarrow$ reddish brow	n							
	(d)	$A \rightarrow CBr_4; B \rightarrow r_4$	reddish l	prown; $C \rightarrow colourles$	s							
44.	Follov	ving is the substituti	ion react	ion in which –CN rep	laces –C	21.						
	R – C	$l + \underset{\text{Alcoholic}}{\text{KCN}} \xrightarrow{\Delta} R - l$	CN + KO	C1								
	To ob	tain propanenitrile, I	R – Cl sl	hould be								
	(a)	chloroethane	(b)	1-chloropropane	(c)	chloromethane	(d)	2-chloropropane				



- $45. \qquad \text{The organic chloro compound, which shows complete stereochemical inversion during as $S_N2$ reaction is}$ 
  - (a)  $(C_2H_5)_2CHCl$  (b)  $(CH_3)_3CCl$  (c)  $(CH_3)_2CHCl$  (d)  $CH_3Cl$

 $46. \qquad CH_3Br+Nu^- \rightarrow CH_3-Nu+Br^-$ 

The decreasing order of the rate of the above reaction with nucleophiles (Nu $\overline{}$ ) A to D is

$$[Nu^- = (A) PhO^-, (B) AcO^-, (C) HO^-, (D) CH_3O^-]$$
 is

- $(a) \qquad D > C > A > B \qquad (b) \qquad D > C > B > A \qquad (c) \qquad A > B > C > D \qquad (d) \qquad B > D > C > A$
- 47. Chloromethane on treatment with excess of ammonia yields mainly

N, N-dimethylmethanamine 
$$\begin{pmatrix} CH_3 \\ CH_3 \end{pmatrix}$$

- (b) N-methylmethanamine  $(CH_3 NH CH_3)$
- (c) methanamine ( $CH_3NH_2$ )
- (d) mixture containing all the above in equal proportion
- 48. In the following sequence of reaction,

$$CH_3 - Br \xrightarrow{KCN} A \xrightarrow{H_3O^+} B \xrightarrow{LiAlH_4} C$$

The product C is

(a)

(a) acetone (b) methane (c) acetaldehyde (d) ethyl alcohol

49. Carbon-halogen bond lengths increases in the order

(a)	C-F < C-Cl < C-Br < C-I	(b)	C - I < C - Br < C - Cl < C - F
(c)	C - I < C - Br < C - F < C - Cl	(d)	C - I < C - F < C - Br < C - Cl

- 50. The order of reactivities of methyl halides in the formation of Grignard reagent is
  - (a)  $CH_3I > CH_3Br > CH_3Cl$  (b)  $CH_3Cl > CH_3Br > CH_3I$
  - (c)  $CH_3Br > CH_3Cl > CH_3I$  (d)  $CH_3Br > CH_3I > CH_3Cl$



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# ABHIMANYU BATCH MATHEMATICS : PART TEST Topic: Application of Derivative

51.	. A square plate contracts at the uniform rate of 2 $cm^2/sec$ . When the side is 16 cm long, its perimeter changes at the rate of									
	(a)	25 cm/sec	(b)	-25 cm/sec	(c)	0.25 cm/sec	(d)	-0.25 cm/sec		
52.	Perime	ter of square increa	ses at th	e rate of 0.4 cm/sec. V	When the	e side is 20 cm, its are	a increa	ses at the rate of		
	(a)	$0.4 \text{ cm}^2/\text{sec}$	(b)	$0.8 \text{ cm}^2/\text{sec}$	(c)	$0.2 \text{ cm}^2/\text{sec}$	(d)	4 cm <sup>2</sup> /sec		
53.	Perime 30 cm,	ter of an isosceles its altitude is chang	triangle ging at th	is 100 cm. If its batter is the state of	ase incre	eases at the rate of 2	cm/min	, then, when base is		
	(a)	2.5 cm/min	(b)	-0.25 cm/min	(c)	25 cm/min	(d)	$-\sqrt{2.5}$ cm/min		
54.	Each si increas	ide of an equilateral	l triangle	e increases at a unifor	m rate o	f 0.5 cm/sec. When o	each side	e is 40 cm, its area is		
	(a)	$5\sqrt{3}$ cm <sup>2</sup> /sec	(b)	$10\sqrt{3}$ cm <sup>2</sup> /sec	(c)	$20\sqrt{3}$ cm <sup>2</sup> /sec	(d)	$15\sqrt{3}$ cm <sup>2</sup> /sec		
55.	If the sincreas	side of a cube increasing at the rate of	ases at t	he rate of 0.04 cm/se	c, then,	when the side is 6 cm	n, surfac	e area of the cube is		
	(a)	2.88 cm <sup>2</sup> /sec	(b)	$2.80 \text{ cm}^2/\text{sec}$	(c)	0.288 cm <sup>2</sup> /sec	(d)	28.8 cm <sup>2</sup> /sec		
56.	If the v	olume and side of a	t cube ar	e changing at the sam	ne rate, t	hen the side of the cul	be is			
	(a)	$\sqrt{3}$ units	(b)	$2\sqrt{3}$ units	(c)	$3\sqrt{3}$ units	(d)	$\frac{1}{\sqrt{3}}$ units		
57.	If the v	volume of a cube in	creases	at the rate of 1 c.c./se	ec., then	, when the side is $\sqrt{3}$	cm, dia	agonal of the cube is		
	increas	ing at the rate of								
	(a)	$\sqrt{3}$ cm/sec	(b)	$2\sqrt{3}$ cm/sec	(c)	2 cm/sec	(d)	$1/3\sqrt{3}$ cm/sec		
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58. If the radius of a sphere increases at the rate of 0.01 cm/sec. then, when the radius is 20 cm, volume of the sphere is increasing at the rate of

(a) 
$$1.6 \ \pi \ c.c./sec$$
 (b)  $0.16 \ \pi \ c.c./sec$  (c)  $16 \ \pi \ c.c./sec$  (d)  $8 \ \pi \ c.c./sec$ 

59. If the volume of a sphere changes at the rate of 140 cc/sec, then, when the radius is 70 cm, its surface area is increasing at the rate of

(a) 
$$2 \text{ cm}^2/\text{sec}$$
 (b)  $1 \text{ cm}^2/\text{sec}$  (c)  $4 \text{ cm}^2/\text{sec}$  (d)  $3 \text{ cm}^2/\text{sec}$ 

60. If a spherical soap bubble expands at the rate of 2 cc/sec, then, when the radius is 10 cm, its diameter is increasing at the rate of

(a) 
$$100 \ \pi \ \text{cm/sec}$$
 (b)  $\frac{1}{100 \ \pi} \ \text{cm/sec}$  (c)  $\frac{\pi}{100} \ \text{cm/sec}$  (d)  $\frac{100}{\pi} \ \text{cm/sec}$ 

61. If air is leaking from a spherical balloon at the rate of 2 cc/sec, then, when the radius is 10 cm, its surface area is decreasing at the rate of

(a) 
$$\frac{2}{5}$$
 cm<sup>2</sup>/sec (b)  $\frac{3}{5}$  cm<sup>2</sup>/sec (c)  $\frac{4}{5}$  cm<sup>2</sup>/sec (d)  $\frac{2}{3}$  cm<sup>2</sup>/sec

62. Water is poured into an inverted cone of semi-vertical angle 30° at the rate of 2 cu.ft./min. When the depth of water in the cone is 1 foot, the surface of water in the cone is rising at the rate of

(a) 
$$\frac{\pi}{6}$$
 ft/min. (b)  $\frac{6}{\pi}$  ft/min. (c)  $6 \pi$  ft/min. (d)  $\frac{2}{\pi}$  ft/min

63. Water is poured into an inverted cone of semi-vertical angle 45° at rate of 2 cu.in./min. The rate at which the depth of water in the cone is increasing when the depth is 4 in. is

(a) 
$$\frac{1}{8\pi}$$
 in/min (b)  $\frac{8}{\pi}$  in/min (c)  $\frac{\pi}{8}$  in/min (d)  $8\pi$  in/min



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64. An inverted cone of filter paper, with vertical angle 60°, is filled with water which runs out at the rate of 3 cu.ft/min. When the depth is 3 ft. 6 in., level of water in the cone is falling at the rate of

(a) 
$$\frac{6}{7\pi}$$
 ft/min (b)  $\frac{7\pi}{6}$  ft/min (c)  $\frac{36}{49\pi}$  ft/min (d)  $\frac{49\pi}{36}$  ft/min

65. Water is running into an inverted cone at the rate of 270 dm<sup>3</sup>/min. The radius of the cone is equal to the depth of water in it. When the water is 18 dm deep, water level is rising at the rate of

(a) 
$$\frac{5}{6\pi}$$
 dm/min (b)  $\frac{30}{\pi}$  dm/min (c)  $\frac{6}{5\pi}$  dm/min (d)  $\frac{1}{30\pi}$  dm/min

- 66. Base radius of a cylindrical vessel, full of oil, is 30 metres. Oil is drawn from it at the rate of 27000 m<sup>3</sup>/min. Rate at which level of oil in the vessel is falling is
  - (a)  $\frac{30}{\pi}$  m/min (b)  $\frac{\pi}{30}$  m/min (c)  $30 \pi$  m/min (d)  $\frac{27}{\pi}$  m/min
- 67. Oil is being filled a cylindrical tank of diameter 18 cm. If the amount of oil in the tank is increasing at the rate of 324  $\pi$  cc/min, then the height of oil is increasing at the rate of
  - (a) 2 cm/sec (b) 3 cm/sec (c) 4 cm/sec (d) 1 cm/sec
- 68. A ladder of length 17 metres rests with one end against a vertical wall and the other on the level ground. If the lower end slips away at the rate of 1 m/sec, then, when it is 8 m away from the wall, its upper end is coming down at the rate of

(a) 
$$\frac{5}{8}$$
 m/sec (b)  $\frac{8}{15}$  m/sec (c)  $\frac{5\pi}{8}$  m/sec (d)  $\frac{15}{8}$  m/sec

69. A ladder 10 m long leans against a house. When its foot is 6 m from the house and moving away at the rate of 0.5 m/sec, its top is sliding down at the rate of

(a) 
$$\frac{3}{8}$$
 m/sec (b)  $\frac{8}{3}$  m/sec (c)  $\frac{4}{3}$  m/sec (d)  $\frac{3}{4}$  m/sec



- 70. A rod 25 ft. long always has its ends A and B on the X-and Y-axes respectively. If A is at 15 ft. from the origin and is moving at the rate of 0.2 ft./sec, then the area of the triangle formed by the rod with the axes is changing at the rate of
  - (a) 3 ft./sec. (b) 0.875 ft./sec. (c) 2 ft./sec. (d) -2 ft./sec.
- 71. A man of height 150 cm walks at the rate of 75 cm/sec, towards a lighted lamp-post which is 450 cm high. When he is 360 cm away from the lamp-post, his shadow is shortening at the rate of

(a) 37.5 cm/sec (b) 75.3 cm/sec (c) 57.3 cm/sec (d) 3.75 cm/sec

- 72. A kite is flying at a height of 40 metres. The boy who is flying it is carrying it at the rate of 3 m/sec. Height of kite remains the same and the string is straight (taut). The rate at which the string is being paid out, when its length is 50 metres, is
  - (a)  $\frac{81}{25}$  m/sec (b)  $\frac{9}{5}$  m/sec (c)  $\frac{5}{9}$  m/sec (d)  $\frac{25}{81}$  m/sec
- 73. An aeroplane at an altitude of 400 metres, flying horizontally with a speed of 250 m/sec, passes directly over an observer. When the aeroplane is 500 m away from the observer, it is approaching him at the rate of
  - (a) 100 m/sec (b) 200 m/sec (c) 300 m/sec (d) 150 m/sec
- 74. A man on the tower 15 metres above the water pulls in a rope, attached to a boat, at the rate of 0.8 m/sec. When the boat is 8 m from the tower, it is approaching the river bank at the rate of
  - (a) 17 m/sec (b) 1.7 m/sec (c) 0.7 m/sec (d) 7 m/sec
- 75. Pressure p and volume v of a certain mass of a gas, at constant temperature, are given by pv = 100. When the volume is 25 cc and increasing at the rate of 0.25 cc/sec, pressure is changing at the rate of
  - (a)  $4 \text{ Dynes/cm}^2$  (b)  $0.4 \text{ Dynes/cm}^2$  (c)  $-0.04 \text{ Dynes/cm}^2$  (d)  $44 \text{ Dynes/cm}^2$



#### Max. Marks: 300

Date: 21.08.2022

## ABHIMANYU BATCH PHYSICS : PART TEST ANSWER KEY Topic: Electro Magnetic Induction

1.	(b)	2.	(b)	3.	(b)	4.	(b)	5.	(c)
6.	(b)	7.	(b)	8.	(d)	9.	(a)	10.	(d)
11.	(a)	12.	(b)	13.	(b)	14.	(d)	15.	(c)
16.	(c)	17.	(b)	18.	(b)	19.	(c)	20.	(c)
21.	(d)	22.	(b)	23.	(b)	24.	(d)	25.	(d)

Date: 21.08.2022

### ABHIMANYU BATCH CHEMISTRY : PART TEST ANSWER KEY Topic: Alkyl halide

26.	(c)	27.	(a)	28.	(a)	29.	(c)	30.	(b)
31.	(c)	32.	(a)	33.	(d)	34.	(a)	35.	(a)
36.	(a)	37.	(c)	38.	(a)	39.	(c)	40.	(a)
41.	(b)	42.	(b)	43.	(b)	44.	(a)	45.	(d)
46.	(a)	47.	(c)	48.	(d)	49.	(a)	50.	(a)

Date: 21.08.2022

### ABHIMANYU BATCH MATHEMATICS : PART TEST ANSWER KEY Topic: Application of Derivative

51.	(d)	52.	(d)	53.	(d)	54.	(b)	55.	(a)
56.	(d)	57.	(d)	58.	(c)	59.	(c)	60.	(b)
61.	(a)	62.	(b)	63.	(a)	64.	(c)	65.	(a)
66.	(a)	67.	(c)	68.	(b)	69.	(a)	70.	(b)
71.	(a)	72.	(b)	73.	(d)	74.	(b)	75.	(c)