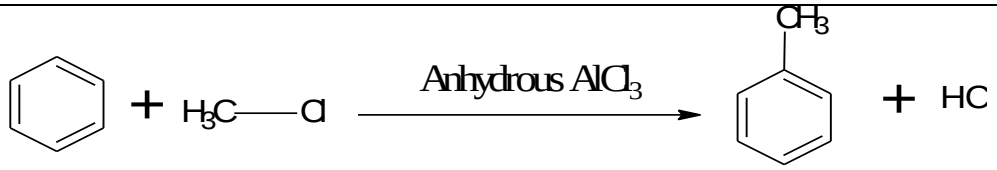
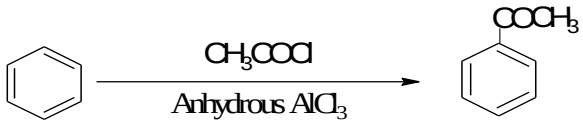
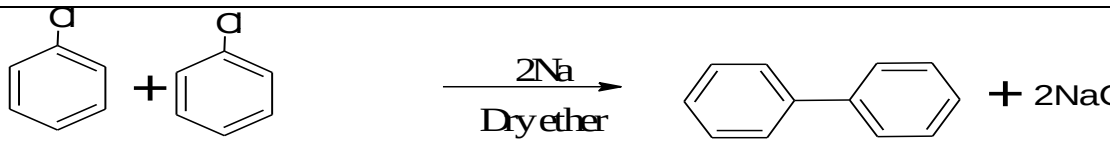
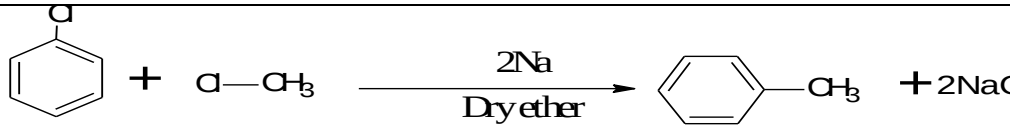
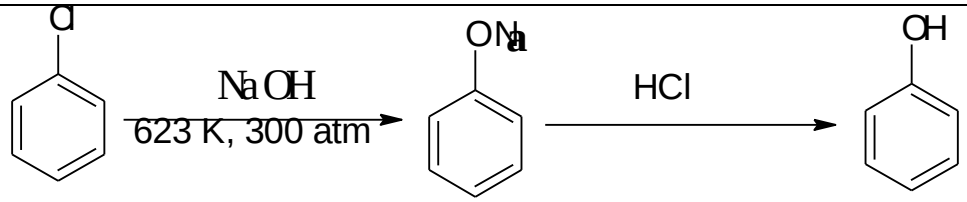
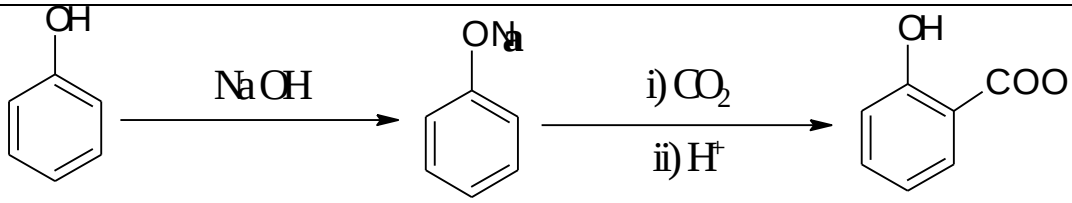
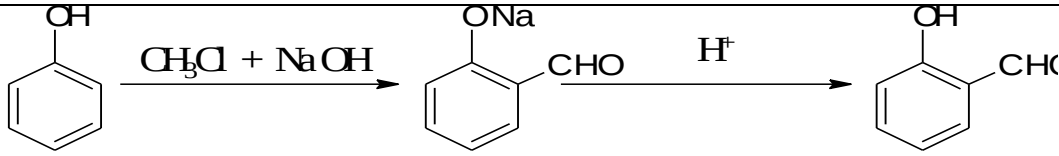
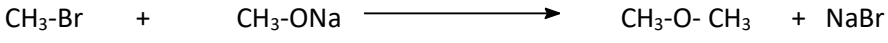
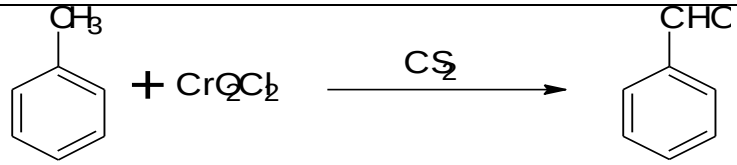
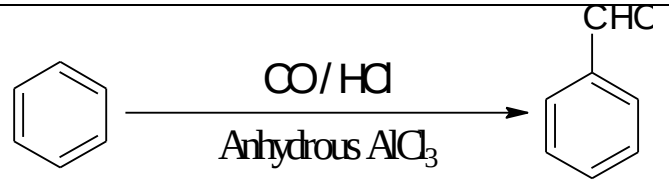
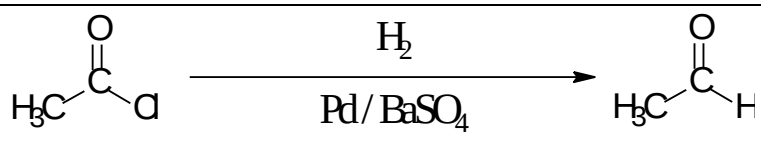
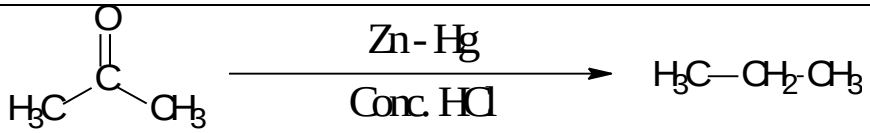
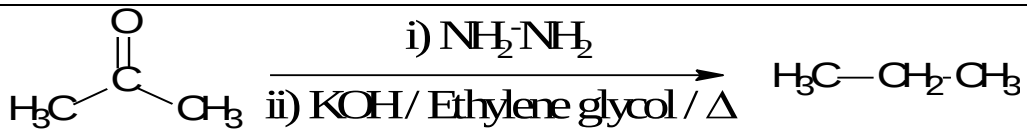
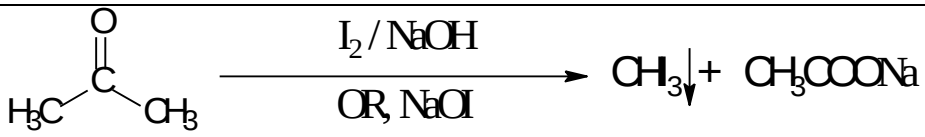
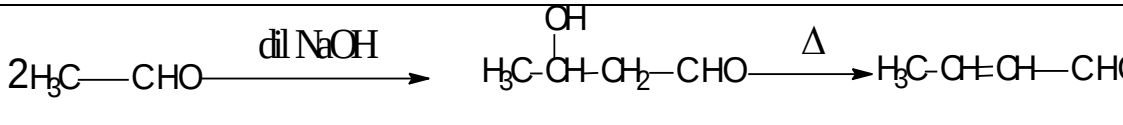
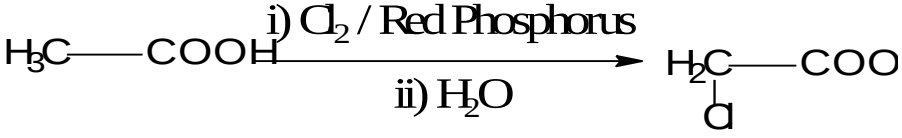
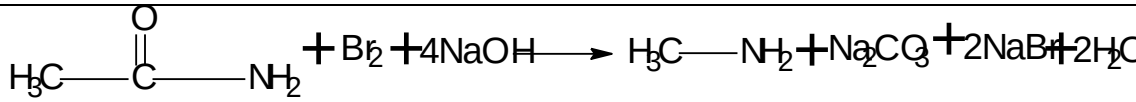
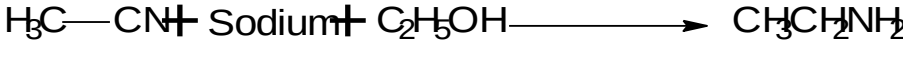
AUTUMN BREAK HOLIDAYS CHEMISTRY (2020-21)

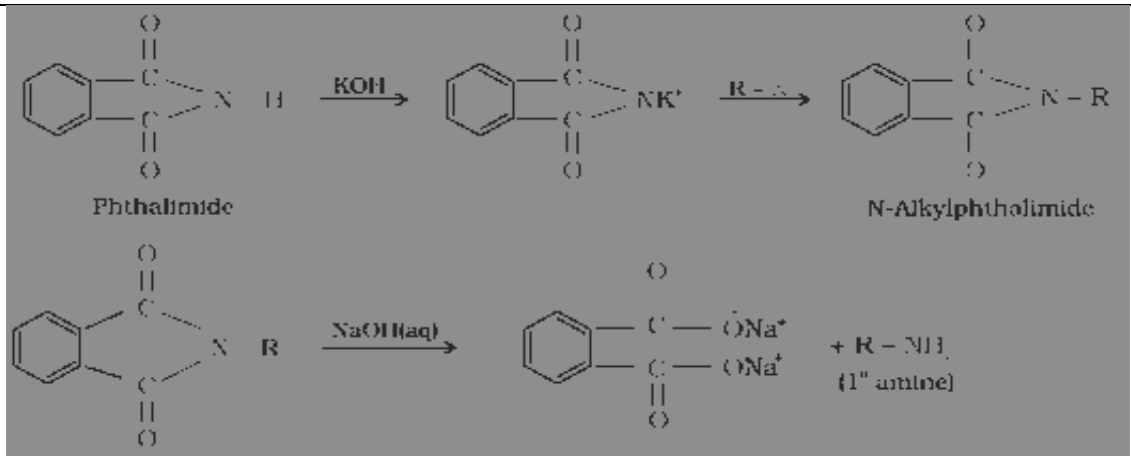
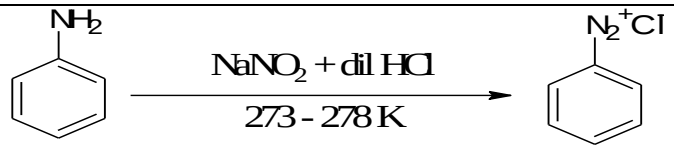
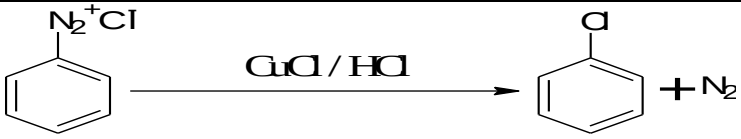
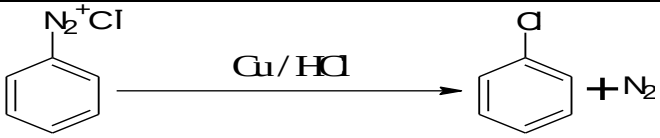
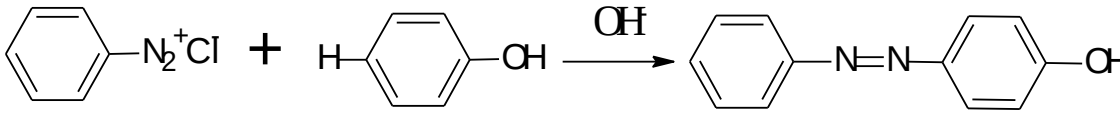
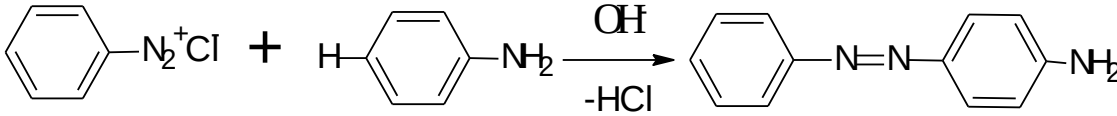
CLASS XII

WRITE AND LEARN ALL THE NAMING REACTIONS

1.	**Finkelstein**	$CH_3Br + NaI \longrightarrow CH_3\text{-}I + NaBr$ Methyl bromide — Methyl Iodide
2.	**Swarts**	$CH_3Br + AgF \longrightarrow CH_3F + AgBr$ Methyl bromide — Silver Flouride — Methyl Flouride
3.	**Friedel-Crafts Alkylation**	 Benzene — Toluene
4.	**Friedel-Crafts Acylation**	 Benzene — Acetophenone
5.	**Wurtz**	$H_3C\text{—}Cl + 2Na + Cl\text{—}CH_3 \xrightarrow{\text{Dry ether}} H_3C\text{—}CH_3 + NaCl$ Methyl chloride — Ethane
6.	**Fittig**	 Chlorobenzene — Biphenyl
7.	**Wurtz-Fittig**	 Chlorobenzene — Toluene

8.	**Dow's Process**	 Chlorobenzene Sodium phenoxide Phenol
9.	**Kolbe**	 Phenol Sodium phenoxide Salicylic acid
10.	**Reimer-Tiemann**	 Phenol Salicylaldehyde
11.	**Williamson**	 Methyl bromide Sodium methoxide Methoxymethane
12.	**Stephen**	 Acetonitrile Ethyl Imine Ethanal
13.	**Etard**	 Toluene Chromyl Chloride Benzaldehyde
14.	***Gatterman – Koch***	 Benzene Benzaldehyde
15.	**Rosenmund reduction**	 Acetyl Chloride Ethanal
16.	**Clemmensen's reduction**	

		Acetone → Propane
17.	**Wolff-Kishner reduction**	 Acetone → Propane
18.	***Tollens' test***	$R\text{-}CHO + 2[Ag(NH_3)_2]^+ + 3OH^- \rightarrow R\text{-}COO^- + 2Ag\downarrow + 2H_2O + 4NH_3$ Alkyl Aldehyde; Tollens's Reagent; Silver
19.	***Fehling's test***	$R\text{-}CHO + 2Cu^{2+} + 5OH^- \rightarrow R\text{-}COO^- + Cu_2O\downarrow + 3H_2O$ Alkyl Aldehyde; Fehling's Reagent; Cuprous oxide (Red ppt)
20.	***Iodoform***	 Acetone → Iodoform (Yellow ppt)
21.	***Aldol condensation***	 Ethanal → 3-hydroxy butanal → But-2-enal
22.	***Cannizzaro***	 Formaldehyde → sodium formate + Methanol
23.	**Hell-Volhard-Zelinsky (HVZ)**	 Ethanoic Acid → 2-Chloroethanoic acid
24.	***Hoffmann bromamide degradation***	 Ethanamide → Methanamine
25.	***Mendius***	 Ethyl Cyanide → Ethylamine

26.	***Gabriel phthalimide synthesis***	
27.	***Carbylamine***	$R\text{-}NH_2 + CHCl_3 + 3\,KOH \xrightarrow{\Delta} R\text{-}NC + 3\,KCl + 3\,H_2O$ Alkyl Amine Chloroform Alkyl isocyanide Unpleasant smell
28.	***Diazotisation***	 Aniline Benzene diazonium Salt
29.	***Sandmeyer.***	 Benzene diazonium Salt Chlorobenzene
30.	***Gatterman***	 Benzene diazonium Salt
31.	***Coupling***	 Benzene diazonium Salt Phenol p-hydroxyazobenzene (Orange Dye)
32.	***Coupling***	 Benzene diazonium Salt Phenol p-aminoazobenzene (Yellow Dye)

	CLASS XI **ALLOTMENT OF CHEMISTRY TERM -1 PROJECT WORK**
	All the students are hereby informed to prepare the CHEMISTRY TERM -1 PROJECT (HAND WRITTEN FILE) on any topic of chemistry suggested list of projects or any other of their interest individually and submit the file on of before 14.08.2021 in the vidyalaya CHEMISTRY LAB along with practical file. **Note :Some of the topics are suggested at the bottom of this file.** **One project will not be taken by more than three students.** **Project must be relevent to the Term -1 syllabus.**
S.No.	TOPIC
1	**Importance and scope of Chemistry**
2	**Metods of expressing the concentration of solution**
3	**Bohr's model and its limitations**
4	**concept of shells and subshells**
5	**dual nature of matter and light**
6	**rules for filling electrons in orbitals**
7	**of** **half-filled and completely filled orbitals**
8	**periodic trends in properties of elements**
9	**atomic Radius along with factors affecting**
10	**Ionisation Energy along with factors affecting**
11	**Electron Gain Enthalpy along with factors affecting**
12	**Shielding / Screening affect along with factors affecting**
13	**bond parameters along with factors affecting them.**
14	**covalent character of ionic bond & fazan's Rule**
15	**resonance,**
16	**VSEPR theory,**
17	**Hybridisation involving s, p and d orbitals and shapes of some simple molecules**
18	**valence bond theory,**
19	**molecular orbital theory of homonuclear diatomic molecules**
20	**concept of hybridization**
21	**Hydrogen bond.**
22	**Metods of balancing redox reactions**

23	**hydrides-ionic covalent and interstitial**
24	**hydrogen as a fuel**
25	**Concept mind map for unit Some Basic Concepts of Chemistry.**
26	**Concept mind map for Structure of Atom.**
27	**Concept mind map for Classification of Elements and Periodicity in Properties.**
28	**Concept mind map for Chemical Bonding and Molecular Structure.**
29	**Concept mind map for Redox Reactions.**
30	**Concept mind map for Hydrogen.**
31	**Concept mind map for Organic Chemistry: Some basic Principles and Techniques.**
32	**General characteristics of s -Block Elements**
33	**General characteristics of p -Block Elements**
34	**General characteristics of d -Block Elements**
35	**General characteristics of f-Block Elements**

HOLIDAY HOMEWORK FOR WINTER BREAK

CLASS XII **SUBJECT PHYSICS**

Solve the following questions in your notebook

SECTION A

This section consists of 25 multiple choice questions with overall choice to attempt any 20 questions. In case more than desirable number of questions are attempted, ONLY first 20 will be considered for evaluation.

01 One metallic sphere A is given positive charge whereas another identical metallic sphere B of exactly same mass as of A is given equal amount of negative charge. Then:

a mass of A and mass of B still remain equal

b mass of A increases

c mass of B decreases

d mass of B increases

02 Force between two identical charges placed at a distance of r in vacuum is F. Now a slab of dielectric of dielectric constant four is inserted between these two charges. If the thickness of the slab is r/2, then the force between the charges will become:

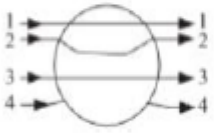
a F

b F 3/5

c 4/9F

d F

03 A metallic sphere is placed in a uniform electric field. The line of force follows the path(s) shown in the figure as:



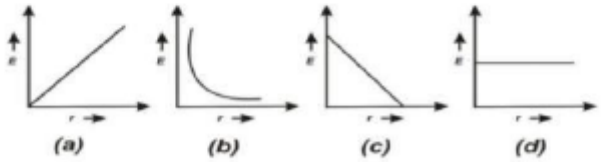
a 1

b 2

c 3

d 4

04 For a point charge, the graph between electric field versus distance is given by : -



a (a)

b (b)

c (c)

d (d)

05 Equipotential surfaces

a are closer in regions of large electric fields compared to regions of lower electric fields.

b will be more crowded near sharp edges of a conductor.

c will always be equally spaced.

d both (a) and (b) are correct.

06 A hollow metal sphere of radius 5 cm is charged so that the potential on its surface is 10

V. The potential at the centre of the sphere is

a 0 V

b 10 V

c Same as at point 5 cm away from the surface

d Same as at point 25 cm away from the surface

07 Unit of Electric flux is

a Newton

b Nm/C

c Vm

d Coulomb

08 In a charged capacitor the energy is stored in

a positive charges

b both in positive and negative charges

c the electric field between the plates

d the edges of the capacitor plates

09 Kirchhoff's II law for the electric network is based on:

a Law of conservation of charge

b Law of conservation of energy

c Law of conservation of angular momentum

d Law of conservation of mass

10 Drift velocity v_d varies with the intensity of electric field as per the relation

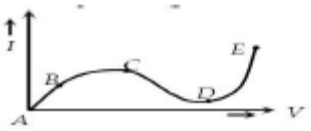
a $v_d \propto 1/E$

b $v_d \propto E^2$

c $v_d \propto E$

d v_d = constant

11 From the graph between current I and voltage V shown below, identify the portion corresponding to negative resistance



a AB

b BC

c CD

d DE

12 Sensitivity of potentiometer can be increased by

a increasing the e.m.f of the cell

b increasing the length of the potentiometer

c decreasing the length of the potentiometer wire

d None of these

13 Which device will have the least resistance?

a Ammeter of range 1A

b Ammeter of range 10 A

c Voltmeter of range 1 V

d Voltmeter of range 10 V

14 A proton and an α a particle enter in a uhiform magnetic field with the same velocity. The period of rotation of the α-particle will be:

a four times that of the proton.

b three times that of the proton.

c two times that of the proton.

d same as that of the proton.

15 The nature of parallel and anti-parallel currents are

a parallel currents repel and antiparallel currents attract.

b parallel currents attract and antiparallel currents repel.

c both currents attract. '

d both currents repel.

16 Two solenoids having lengths L and 2L and the number of loops N and 4N, both have the same current, then the ratio of the magnetic field will be

a 1 : 2

b 2 : 1

c 1 : 4

d 4 : 1

17 A charged particle moving with velocity v in X direction is subjected to a magnetic field B in negative X direction. As a result, the charge will

a retard along X-axis

b start moving in a circular path in YZ plane

c remains unaffected

d move in a helical path around X-axis

18 The strength of the earth's magnetic field is

a constant everywhere

b zero everywhere

c having very high value

d vary from place to place on the earth's surface

19 In a coil of self-induction 5 H, the rate of change of current is 2 As-1. Then emf induced in the

a 10 V

b -10 V

c 5 V

d -5 V

20 A metal plate can be heated by

a passing either a direct or alternating current through the plate.

b placing in a time varying magnetic field.

c placing in a space varying magnetic field, but does not vary with time.

d both (a) and (b) are correct.

21 When current in a coil change from 5 A to 2 A in 0.1 s, average voltage of 50V is produced. The self-inductance of the coil is

a 1.67H

b 6H

c 3H

d 0.67H

22 The expression for the induced e.m.f. contains a negative sign $e = -d\Phi/dt$. What is the significance of the negative sign?

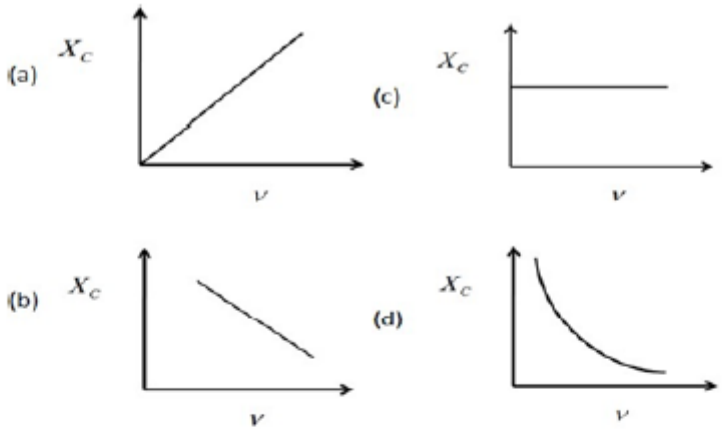
a The induced e.m.f. is produced only when the magnetic flux decreases.

b The induced e.m.f. opposes the change in the magnetic flux.

c The induced e.m.f. is opposite to the direction of the flux.

d None of the above.

23 Q.48. The correct variation of capacitive reactance of a capacitor with frequency is represented by



24 A capacitor of capacitance $10^{-4}/\pi$ F, an inductor of inductance $2/\pi$ H and a resistor of resistance 100 Ω are connected to form a series RLC circuit. When an AC supply of 220 V, 50 Hz is applied to the circuit, determine the impedance of the circuit

a 14.14 ohm

b 141.4 ohm

c 200 ohm

d 100 ohm

25 An a.c. generator consists of a coil of 1000 turns and cross-sectional area of $3m^2$, rotating at a constant angular speed of 60 rad s^{-1} in a uniform magnetic field 0.04 T. The resistance of the coil is 500Ω. Calculate the maximum current drawn from the generator

a 2500 A

b 1.44 A

c 6.25 A

d 0.55 A

SECTION B

This section consists of 24 multiple choice questions with overall choice to attempt any 20 questions. In case more than desirable number of questions are attempted, ONLY first 20 will be considered for evaluation.

26 Two balls carrying charges of +3 μC and -3μC attract each other with a force F. If a charge of +3μC is added to both the balls then the force between them becomes

a F/2

b 2F

c F

d 0

27 Two point charges +8q and -2q are located at x=0 and x=L respectively. The point on x axis at which net electric field is zero due to these charges is-

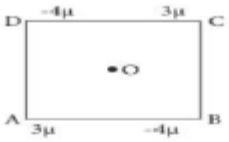
a 8L

b 4L

c 2 L

d L

28 Four point charges are placed at the corners of a square ABCD of side 10 cm, as shown in figure.
The force on a charge of 1 μC placed at the center of square is:



a 7 N

b 12 N

c 18 N

d Zero

29 Two positive point charges are 3 m apart and their combined charge is 20 μC. If the force between them is 0.075 N, then the charges are:

a 10 μC, 10 μC

b 15 μC, 5 μC

c 12 μC, 8 μC

d 14 μC, 6 μC

30 A capacitor is charged by a battery. The battery is removed and another identical uncharged capacitor is connected in parallel. The total electrostatic energy of resulting system

a increases by a factor of 4.

b decreases by a factor of 2.

c remains the same.

d increases by a factor of 2.

31 Three capacitors of capacitances 1μf, 2μF & 3μF are connected in series and a potential difference of 11V is applied across the combination them the potential difference across the plates of 1μF capacitor is

a 2 V

b 4 V

c 1 V

d 6 V

32 A parallel plate capacitor is charged by a battery. Once it is charged battery is removed. Now a dielectric material of dielectric constant K is inserted between the plates of the capacitor, how does electric potential change?

a decreased by K times

b increased by K times

c remains same

d increased by K/2 times

33 The work done in increasing the voltage across the plates of a capacitor from 5 V to 10 V is W. The work done in increasing the voltage from 10 V to 15 V will be

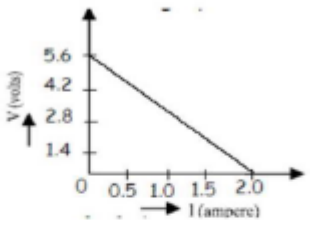
a W

b 4W/3

c 5W/3

d 2W

34 A straight line plot showing the terminal potential difference (V) of a cell as a function of current (I) drawn from it, is internal resistance of the cell would be then



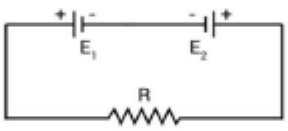
a 2.8 ohms

b 1.4 ohms

c 1.2 ohms

d zero

35 In the circuit shown, the emf of the cells are: E_1= 10V, E_2= 40V, R= 15Ω; internal resistances are r_1= 1Ω, r_2= 2Ω. Calculate the current through R.



a 4/3 A

b 2/3 A

c 5/3 A

d 7/3 A

36 A student connects 10 dry cells each of emf E and internal resistance r in series, but by mistake the one cell gets wrongly connected. Then net emf and net internal resistance of the combination will be

a 8E, 8r

b 10E, 10r

c 8E, 10r

d 8E, r/10

37 A circular loop of radius R carries a current I. The magnetic field at its centre is B.

At what distance from the centre on the axis of the coil, the magnetic field will be B/8?

a √2R

b √3R

c 2R

d 3R

38 The maximum current that can be measured by a galvanometer of resistance 40 Ω is 10 mA. It is converted into voltmeter that can read up to 50 V. The resistance to be connected in the series with the galvanometer is

a 2010 Ω

b 4050 Ω

c 5040 Ω

d 4960 Ω

39 A thin circular wire carrying a current I, has a magnetic moment M. The shape of a wire is changed to a square and it carries the same current. It will have a magnetic moment-

a $4M/\pi^2$

b M

c $\pi M/4$

d $4M/\pi$

40 At a given place on earth's surface the horizontal component of earth's magnetic field is 2×10^{-5} T and resultant magnetic field is 4×10^{-5} T. The angle of dip at this place is

a 30°

b 60°

c 90°

d 0°

41 In the given figure current from A to B in the straight wire is decreasing. The direction of induced current in the loop is

a clockwise

b anticlockwise

c changing

d nothing can be said

42 An aircraft with a wingspan of 40 m flies with a speed of 1080 km/hr in the eastward direction at a constant altitude in the northern hemisphere, where the vertical component of the earth's magnetic field 1.75×10^{-5}T. Then the emf developed between the tips of the wings is

a 5V

b 34V

c 0.21V

d 2.1V

43 The role of inductance is equivalent to

a Inertia

b force

c energy

d momentum

44 A bulb connected in series with a solenoid is lit by an AC source. If a soft iron core is introduced in the solenoid then

a the bulb will glow brighter

b the bulb will glow dimmer

c there will be no effect on the light produced by the bulb

d bulb may glow more brighter or dimmer

Question no 46 to 49 are Assertion (A) and Reason (R) type questions.
Two statements labelled as Assertion (A) and Reason (R)

Select the most appropriate answer from the options given below:

a) Both A and R are true and R is the correct explanation of A

b) Both A and R are true but R is not the correct explanation of A.

c) A is true but R is false.

d) A is false and R is also false.

45 **Assertion(A):** A point charge is brought in an electric field, the field at a nearby point will increase or decrease, depending on the nature of charge.
Reason(R): The electric field is independent of the nature of charge.

Select the most appropriate answer from the options given below:

a Both A and R are true and R is the correct explanation A

b Both A and R are true but R is not the correct explanation of A.

c A is true but R is false

d A is false and R is also false.

46 **Assertion(A):** The potential difference between any two points in an electric field depends only on initial and final position.
Reason(R): Electric field is a conservative field so the work done per unit positive charge does not depend on path followed.

Select the most appropriate answer from the options given below:

a Both A and R are true and R is the correct explanation A

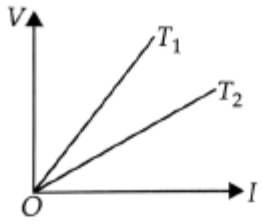
b Both A and R are true but R is not the correct explanation of A.

c A is true but R is false

d A is false and R is also false.

47 **Assertion(A):** In the graph shown below, temperature $T_1 > T_2$.

Reason (R): The slope of V-I graph gives resistance of a conductor at a given temperature



Select the most appropriate answer from the options given below

a Both A and R are true and R is the correct explanation A

b Both A and R are true but R is not the correct explanation of A.

c A is true but R is false

d A is false and R is also false.

48 **Assertion (A):** A charge, whether stationary or in motion produces a magnetic field around it.

Reason (R) : Moving charges produce only electric field in the surrounding space.

Select the most appropriate answer from the options given below:

a Both A and R are true and R is the correct explanation A

b Both A and R are true but R is not the correct explanation of A.

c A is true but R is false

d A is false and R is also false.

49 **Assertion (A):** Acceleration of a magnet falling through a long solenoid decreases.

Reason (R) : The induced current produced in a circuit always flow in such direction that it opposes the change to the cause that produced it.

Select the most appropriate answer from the options given below:

a Both A and R are true and R is the correct explanation A

b Both A and R are true but R is not the correct explanation of A.

c A is true but R is false

d A is false and R is also false.

SECTION C

This section consists of 6 multiple choice questions with an overall choice to attempt any 5. In case more than desirable number of questions are attempted, ONLY first 5 will be considered for evaluation.

50 An electric bulb marked 40W– 200V is used in a circuit of supply voltage 100 V. Now its power is

a 10 W

b 20 W

c 40 W

d 100 W

51 A magnetic needle, free to rotate in a vertical plane, orients itself with its axis vertical at a certain place on the earth. The angle of dip at this place is

a 90°

b 0°

c 30°

d 60°

Case study :

Read the following paragraph and answers the questions

For many purposes, it is necessary to change (or transform) an alternating voltage from one to another of greater or smaller value. This is done with a device called *transformer* using the principle of mutual induction.

A transformer consists of two sets of coils, insulated from each other. They are wound on a soft-iron core, either one on top of the other as in or on separate limbs of the core. One of the coils called the *primary coil* has *Np* turns. The other coil is called the *secondary coil*; it has *Ns* turns.

Often the primary coil is the input coil and the secondary coil is the output coil of the transformer. When an alternating voltage is applied to the primary, the resulting current produces an alternating magnetic flux which links the secondary and induces an emf in it. The value of this emf depends on the number of turns in the secondary. We consider an ideal transformer in which the primary has negligible resistance and all the flux in the core links both primary and secondary windings

52 If the primary coil of a transformer has 100 turns and the secondary has 200 turns, Ns/Np = 2. Thus, a 220V input at 10A will

a step-up to 440 V output at 5.0 A.

b step-up to 660 V output at 5.0 A

c step-down to 220 V output at 15.0 A

d step-down to 110 V output at 15.0 A

53 If the secondary coil has less turns than the primary (Ns < Np), we will have

a Step-Up Transformer

b Step-Down Transformer

c Neither Step-Up Transformer nor Step-Down Transformer

d Both Step-Up Transformer and Step-Down Transformer

54 In actual transformers, small energy losses do occur due to the

a Flux Leakage

b Resistance of the windings

c Eddy currents

d All the above

55 The transformer ratio in the step-up transformer is

a one

b greater than one

c less than one

Holidays homework (Biology)

class XI (A, B)

1. To complete both the theory projects of Term I.
2. To complete/make corrections in the investigatory project and Practical record of Term I

class XI (A, B)

1. To complete one theory project of Term I.
2. To complete investigatory Project of Term I.
3. From chapter 4 – (Animal Kingdom) and chapter 5 – (Morphology of flowering plants) :- Do 30 MCQ, 10 Assertion reason type and 05 CCT based questions from each chapter in your notebook.

Rawhany 08/10/21.

अवकाश गृह कार्य अक्टूबर 2021

कक्षा 11, 12

1- प्रथम सत्र परीक्षा के लिए निर्धारित पाठों सभी पाठों के पीछे दिए गए प्रश्नों के को अच्छी तरह से पढ़िए.

2- पाठों पर आधारित प्रश्नों के उत्तर दीजिए

3- यूट्यूब पर उपलब्ध सभी पाठों की क्विज का अभ्यास करिए और अपना मूल्यांकन करिए

4- सभी पाठों के पीछे दिए गए प्रश्नों के उत्तर अपनी नोटबुक में एक से एक बार लिखिए

5- सभी पार्टियों और कविताओं का सारांश अपने शब्दों में दो दो पृष्ठ में अपनी नोटबुक में लिखिए.

KENDRIYA VIDYALAYA NO.1 JAMMU

AUTUMN BREAK (w.e.f 11.10.21 to 20.10.21)

HOLIDAYS HOME WORK FOR CLASS 12TH GEOGRAPHY-21

1. 10 MCQ questions from each chapter of term 1.

2. 5 assertion and reasoning questions from each chapter.

3. Do maps from the chapter “Primary activities".

4. Revise all the chapters for “Pre-Board 1" and "term 1" exam.

RAJESH KUMAR
PGT-GEOGRAPHY
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KENDRIYA VIDYALAYA NO. 1 JAMMU

HOLIDAY HOME WORK DURING AUTUMN BREAK

CLASS: XIB, C, D

SUBJECT: MATHS

1	MISCELLANEOUS EXERCISE- CHAPTER 1
2	MISCELLANEOUS EXERCISE- CHAPTER 2
3	MISCELLANEOUS EXERCISE- CHAPTER 5
4	EXERCISE- 9.3 COMPLETE
5	MISCELLANEOUS EXERCISE- CHAPTER 9 Q.NO.1 to 15

SUBJECT TEACHER: JOGINDER SINGH XIC

SUBJECT TEACHER: NEHA SHARMA XIB, D