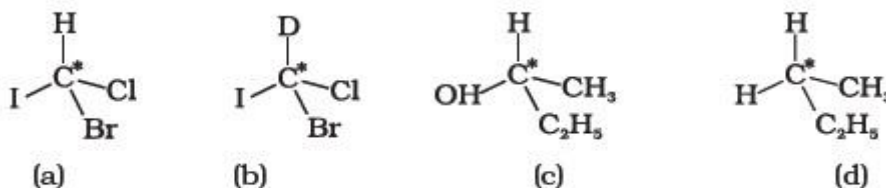**AUTUMN BREAK HOMEWORK CLASS XII 2023**

KENDRIYA VIDYALAYA HIMMATNAGAR

SUBJECT: CHEMISRTY

- **Complete the investigatory project.**

CHAPTER: ALKYL AND ARYL HALIDES

Q1.In which of the following molecules carbon atom marked with asterisk (*) is asymmetric? **1**


(a)   (b)   (c)   (d)

(A) (a), (b), (c), (d)

(B) (a), (b), (c)

(C) (b), (c), (d)

(D) (a), (c), (d)

Q.2 Chlorobenzene is formed by reaction of chlorine with benzene in the presence of $AlCl_3$. Which of the following species attacks the benzene ring in this reaction ?   **1**
(A) Cl^-
(B) Cl^+
(C) $AlCl_3$
(D) $[AlCl_4]^-$

Q.3 Identify following reaction: **1**

A) Wurtz

Reaction
B) Etard Reaction
C) Reimer Tiemann Reaction
D) Kolbe Reaction

Q.4 The reaction of toluene with chlorine in the presence of iron and in the absence of light yields _____.   **1**

A) Benzyl chloride
B) o-Chlorobenzene

.55/1/1

C) p-Choloro benzene

D) Mixture of B and C
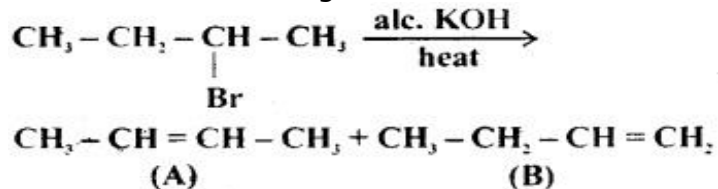
Q.5 What is **Q** in the following reaction?
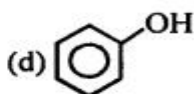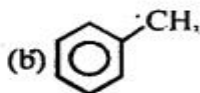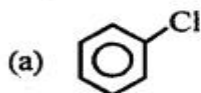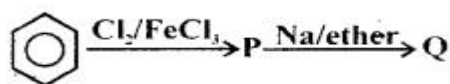
Q.6 Which of the following is the correct order of decreasing S_N2 reactivity?   **1**

A) $RCH_2X > R_2CHX > R_3CX$

B) $R_3CX > R_2CHX > RCH_2X$

C) $R_2CHX > R_3CX > RCH_2X$

D) $RCH_2X > R_3CX > R_2CHX$

Q.7 Which of the following is correct for the reaction   **1**

$$CH_3 - CH_2 - \underset{\underset{Br}{|}}{CH} - CH_3 \xrightarrow[\text{heat}]{\text{alc. KOH}}$$

$$\underset{(A)}{CH_3 - CH = CH - CH_3} + \underset{(B)}{CH_3 - CH_2 - CH = CH_2}$$

a) A is major product and B is minor product

b) B is major product and A is minor product

c) Only A will be obtained as a product

d) Only B will be obtained as a product

Q8 Tertiary alkyl halides are practically inert to substitution by SN 2 mechanism because of   **1**

(A)   steric hindrance

(B)   inductive effect

(C)   instability

(D)   insolubility

Q.9 Match the reactions given in Column I with the names given in Column II.   **1**

Column I	Column II

(i) ⟨benzene⟩—X + RX $\xrightarrow{Na}$ ⟨benzene⟩—R (a) Fittig reaction

(ii) 2 ⟨benzene-X⟩ + 2Na $\xrightarrow{Ether}$ ⟨biphenyl⟩ + 2NaX (b) Wurtz Fittig reaction

(iii) ⟨benzene⟩—$\overset{+}{N_2}\overset{-}{X}$ $\xrightarrow{Cu_2X_2}$ ⟨benzene⟩—X + N$_2$ (c) Finkelstein reaction

(iv) $C_2H_5Cl + NaI \xrightarrow{dry\ acetone} C_2H_5I + NaCl$ (d) Sandmeyer reaction
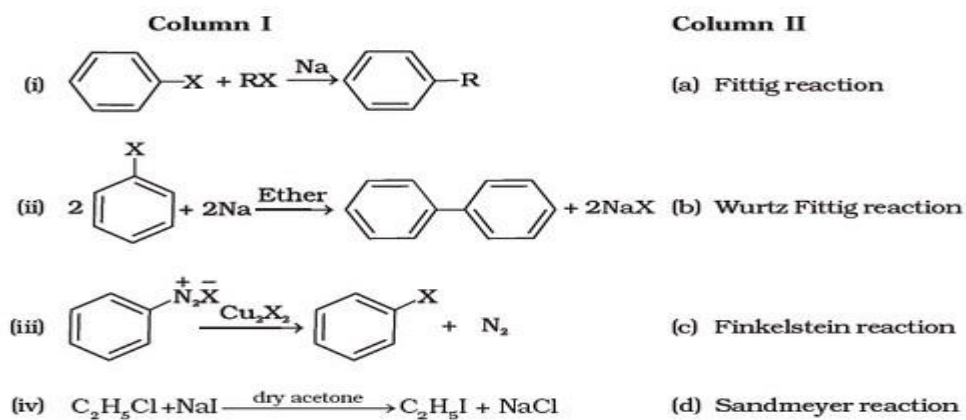
A) i-a, ii-b ,iii-c, iv-d
B) i-b, ii-a , iii-d, iv-c
C) i-d, ii-b ,iii-c, iv-a
D) i-c, ii-a ,iii-b, iv-d

Q.10 Alkyl fluorides are synthesised by heating an alkyl chloride/bromide in presence of_ 1

(A) Ca F$_2$
(B) PF$_3$
(C) Hg$_2$F$_2$
(D) NaF
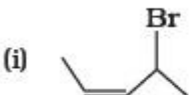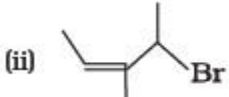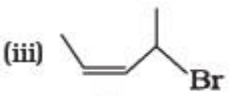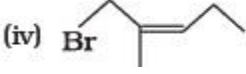
Q.11 Haloalkanes contain halogen atom (s) attached to the sp^3 hybridised carbon atom of an alkyl group. Identify haloalkane from the following compounds. 1

(A) 2-Bromopentane
(B) Vinyl chloride (chloroethene)
(C) 2-chloroacetophenone
(D) chlorobenzene

Q.12 Alkyl halides are prepared from alcohols by treating with_____ 1

(A) HCl + ZnCl$_2$
(B) Red P + Br$_2$
(C) PCl$_5$
(D) All the above

Q.13 Match the structures given in Column I with the names in Column II. 1

Column I	Column II
(i) [structure with Br]	(a) 4-Bromopent-2-ene
(ii) [structure with Br]	(b) 4-Bromo-3-methylpent-2-er
(iii) [structure with Br]	(c) 1-Bromo-2-methylbut-2-en
(iv) Br [structure]	(d) 1-Bromo-2-methylpent-2-er

A) i-a, ii-b ,iii-c, iv-d
B) i-b, ii-a, iii-d, iv-c

C) i-d, ii-b ,iii-c, iv-a

D) i-a, ii-d, iii-c, iv-b

Q.1 4 Which is the correct increasing order of boiling points of the following compounds?   **1**
      1-Iodobutane, 1-Bromobutane, 1-Chlorobutane, Butane

(A) Butane < 1-Chlorobutane < 1-Bromobutane < 1-Iodobutane
(B) 1-Iodobutane < 1-Bromobutane < 1-Chlorobutane < Butane
(C) Butane < 1-Iodobutane < 1-Bromobutane < 1-Chlorobutane
(D) Butane < 1-Chlorobutane < 1-Iodobutane < 1-Bromobutane

Given below question no 15-18 consist of an "Assertion" (A) and   **1**
"Reason" (R) Type questions. Use the following Key to choose the appropriate answer.

A.If both (A) and (R) are true, and (R) is the correct explanation of (A).

Q.1 5

B.If both (A) and (R) are true but (R) is not the correct explanation of (A).

C.If (A) is true but (R) is false.

(A) is false but (R) is true.

Assertion : Presence of a nitro group at ortho or para position increases the reactivity of haloarenes towards nucleophilic substitution.

Reason : Nitro group, being an electron withdrawing group decreases the electron density over the benzene ring.

OBYJU'S

Q.16 Assertion : It is difficult to replace chlorine by –OH in chlorobenzene in comparison to that in chloroethane.
Reason : Chlorine-carbon (C—Cl) bond in chlorobenzene has a partial double bond character due to resonance.   **1**

Q.17 Assertion: Chlorobenzene is less reactive than benzene towards the electrophilic substitution reaction.
Reason: Resonance destabilises the carbo cation.

Q.18 Assertion:The C–Cl bond length in chlorobenzene is shorter than that in CH_3–Cl.
Reason: In haloarenesCl is attached to sp^2 hyridised carbon which is more electronegative than sp^3 hybridised carbon.

Section B

Q.19 Hydrolysis of optically active 2-bromobutane forms optically inactive butan-2-ol. Why?   **2**

Q.20 **a)**Which one out of $CH_3CH(Cl)CH_2CH_3$ and $CH_3CH_2CH_2CH_2Cl$ is more easily hydrolysed by KOH(aq).
b)Arrange the following compounds according to reactivity towards nucleophillic substitution reaction with CH_3ONa
4- nitro chloro benzene, 2,4 di nitro chlorobemzene, 2,4,6, trinitrochlorobenzene   **2**

Q.21 Vinyl chloride is less reactive than allyl chloride. Why?   **2**

Q.22 How is chlorobenzene prepared by (a) direct chlorination (b) diazotization method?   **2**

Q.23 Why do haloalkenesunder gonucleophillic substitution whereas haloarenesunder goelectophillicsubstitution **?**   **2**

Q.24 What happens when
a) Thionyl chloride acts upon   propan-1-ol. b) Ethanol reacts with PBr_3.   **2**

Q.25 What are the IUPAC names of the insecticide DDT and benzenehexachloride? Why is their use banned in India and other countries?   **2**

Section C

Q.26 Compound 'A' with molecular formula C_4H_9Br is treated with aq. KOH solution. The rate of this reaction depends upon the concentration of the compound 'A' only. When another isomer 'B' of this compound was treated with aq. KOH solution, the rate of reaction was found to be dependent on concentration of compound and KOH both. (i) Write   **3**

down the structural formula of both compounds 'A' and 'B'. (ii) Out of these two compounds, which one will be optically active?

Q.27 What is the difference between enantiomers and diastereomers. Illustrate with one example. **3**

Q.28 Some alkylhalides undergo substitution whereas some undergo elimination reaction on treatment with bases. Discuss the structural features of alkyl halides with the help of examples which are responsible for this difference? **3**

Q.29 Give the IUPAC names of the following:- **3**

(a) o-Br-C_6H_4CH(CH_3)CH_2CH_3
(b) CH_3C(Cl)(C_2H_5)CH_2CH_3
(c) Cl-CH_2 C $\equiv$ C-CH_2-Br

Q.30 Complete the following reactions : **3**

i) CH_3CH=C(CH_3)$_2$ + HBr -------$\rightarrow$
ii) $CH_3CH_2CH_2$OH + $SOCl_2$ ------------$\rightarrow$
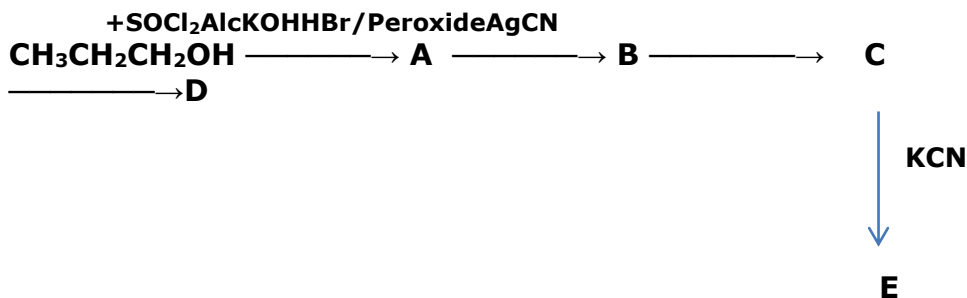iii) CH_3CH_2Br + Mg ---------$\rightarrow$

Section D

Q.31 Chloroflouro carbon (CFC) compounds of methane and ethane are collectively known as freons. They arenon-inflammable , extremely stable, non-toxic, non-corrosive and low boiling liquids. CFC and gas emittedfrom the exhaust system of supersonics aeroplanes might be slowly depleting the concentration of the ozonelayer in the upper atmosphere. Answer the following questions on the basis oy your knowledge .in this topic **4**
1. Write the formula of freon.
2. Give two uses of chloroflourocarbons.
3. How does freon-12 deplete ozone layer?
4. Do you think the use of CFCs should be banned? Give reason.

Q.32 Methyl chloride, methyl bromide, ethyl chloride and some chlorofluoromethanes are gases at roomtemperature. Higher members are liquids or solids. As we have already learnt, molecules of organichalogen compounds are generally polar. Due to greater polarity as well as higher molecular mass ascompared to the parent hydrocarbon, the intermolecular forces of attraction (dipole-dipole and van der Waals) are stronger in the halogen derivatives. That is why the boiling points of chlorides, bromidesand iodides are considerably higher than those of the hydrocarbons of comparable molecular mass. Theattractions get stronger as the molecules get bigger in size **4**

and have more electrons.

i)Draw all the possible isomers structure of bromobutaneand arrange them in increasing order of boiling points. (2 marks)
ii)Even thoughhaloalkanes are polar compounds these compounds are least soluble in water.Why?(1 mark)
iii) How will you distinguish between chloroethane and bromoethane?(1 mark)

Q.3 3   **i)Identify A, B , C, D and E in the following:-**   5

$$+SOCl_2AlcKOHHBr/PeroxideAgCN$$
$$CH_3CH_2CH_2OH \longrightarrow A \longrightarrow B \longrightarrow C$$
$$\longrightarrow D$$

KCN

E

Section E

Q.3 4   i) Arrange in increasing order of boiling points.   5
(a) Bromomethane, Bromoform, chloromethane,Dibromo-methane

(b)1-chloropropane, Isopropyle chloride, 1-Chlorobutane.
(c) 1-chloropropane, , 1-bromopropane, 1-iodopropane

ii) Which compound will react faster in SN_2 reaction with OH---?
(a) CH_3Br and CH_3I (SN_2)
(b) $(CH3_)3C-Cl$ or CH_3Cl (SN_2)

Q.3 5   How the following conversions can be carried out?   5

      i)   But-1-ene to n-butyliodide
      ii)   2-Chloropropane to 1-propanol
      iii)   Isopropyl alcohol to iodoform
      iv)   Chlorobenzene to p-nitrophenol
      v)   2-Bromopropane to 1-bromopropane

ALCOHOL, PHENOL AND ETHER

Q.1   Acid-catalysed hydration of alkenes except ethene leads to the formation of :   **1**
(a)primary alcohol
(b)secondary or tertiary alcohol
(c)mixture of primary and secondary alcohol
(d)mixture of secondary and tertiary alcohol

Q.2   From amongst the following alcohols, the one that would react faster with conc HCl   **1**
and anhydrous $ZnCl_2$,is
(a)2-methypropanol
(b)1-butanol
(c) 2-butanol
(d) 2-methylpropan-2-ol

Q.3   Identify following   **1**
reaction:
  (a) Wurtz Reaction
  (b) Etard Reaction
  (c) Reimer Tiemann
     Reaction
  (d) Kolbe Reaction

Q.4   Ortho-nitrophenol is less soluble in water than p- and m-nitrophenols because   **1**
(a)o-nitrophenol shows intramolecular H-bonding
(b)o-nitrophenol shows intermolecular H-bonding
(c)melting point of o-nitrophenol is lower than those of m- and p-nitrophenols
(d)o-nitrophenols is more volatile in steam than those of m- and p-isomers

Q.5   An organic compound X on treatment with pyridinium chlorochromate in
dichloromethane gives compound Y. Compound Y reacts with I_2 and alkali to form
triiodo methane . The compound 'X' is
(a)CH_2CH_2OH (b)CH_3CHO (c)CH_3COCH_3 (d)CH_3COOH

Q.6   Compound 'A' of molecular formula $C_4H_{10}O$ on treatment with Lucas reagent at room   **1**
temperature gives a compound 'B'.When compound'B' is heated with alcoholic KOH,
it gives isobutene. Compound 'A' and 'B' are respectively
  (a) 2-methyl-2propanol and 2-chloro-2-mehtyl-propane
  (b) 2-methyl-1-propanol and 1-chloro-2methyl-propane
  (c) 2-methyl-1-propanol and 2-chloro-2methyl-propane
  (d) butan-2-ol and 2-chlorobutane

Q.7 Which of the following reagent may be used to distinguish between phenol and benzoic acid? **1**

    (a) Neutral $FeCl_3$

    (b) Aqueous NaOH

    (c) Tollen's reagent

    (d) Molisch reagent

Q8 Reaction of phenol with carbon tetra chloride in presence of dilute sodium hydroxide finally introduces which one of the following functional group? **1**

(a) – COOH   (b) – $CHCl_2$ (c) – CHO   (d) – CH_2Cl

Q.9 Heating of phenyl methyl ether with HI produces **1**

(a)iodobenzene   (b) phenol   (c) benzene   (d) ethyl chloride

Q.10 Lucas reagent is: **1**

    (a) anhydrous$CaCl_2$ and conc. HCl

    (b) anhydrous $ZnCl_2$ and conc. HCl

    (c) anhydrous $AlCl_3$ and conc. HCl

    (d) anhydrous $PdCl_2$ and conc. HCl

Q.11 Vapours of an alcohol X when passed over hot reduced copper, produce an alkene, the alcohol is **1**

(a) primary alcohol (b) secondary alcohol   (c) tertiary alcohol   (d) dihydric alcohol

Q.12 Iodoform test is not given by **1**

    (a) Ethanol   (b) Ethanal   (c) Pentan-2-one   (d) Pentan-3-one

Q.13 Phenol when treated with neutral $FeCl_3$, it gives a complex of **1**

    (a) violet colour   (b) red colour   (c) green colour   (d) yellow colour

Q.14 A tertiary alcohol is obtained by the reaction of Grignard reagent with: **1**

(a) Butanone   (b) Propanone   (c) Acetone   (d) All of the above

Q.15 Given below consist of an "Assertion" (A) and "Reason" (R) Type questions. Use the following Key to choose the appropriate answer. **1**

    a.   If both (A) and (R) are true, and (R) is the correct explanation of (A).

    b.   If both (A) and (R) are true but (R) is not the correct explanation of (A).

    c.   If (A) is true but (R) is false.

    d.   If (A) is false but (R) is true.

Assertion: An ether is more volatile than an alcohol of comparable molecular mass.

Reason : Ethers are polar in nature.

Q.16 Given below consist of an "Assertion" (A) and "Reason" (R) Type questions. Use the **1** following Key to choose the appropriate answer.
 a.   If both (A) and (R) are true, and (R) is the correct explanation of (A).
 b.   If both (A) and (R) are true but (R) is not the correct explanation of (A).
 c.   If (A) is true but (R) is false.
 d.   If (A) is false but (R) is true.
 Assertion: Phenols are more acidic than aliphatic alcohols.
 Reason: The phenoxide ion is more resonance stabilised than alkoxide ion.

Q.17 Given below consist of an "Assertion" (A) and "Reason" (R) Type questions. Use the **1** following Key to choose the appropriate answer.
 a.   If both (A) and (R) are true, and (R) is the correct explanation of (A).
 b.   If both (A) and (R) are true but (R) is not the correct explanation of (A).
 c.   If (A) is true but (R) is false.
 d.   If (A) is false but (R) is true.
 Assertion: Phenol is more reactive than benzene towards electrophilic substitution reaction.
 Reason: In case of phenol, the intermediate carbocation is more stabilized by resonance.

Q.18 Given below consist of an "Assertion" (A) and "Reason" (R) Type questions. Use the **1** following Key to choose the appropriate answer.
 a.   If both (A) and (R) are true, and (R) is the correct explanation of (A).
 b.   If both (A) and (R) are true but (R) is not the correct explanation of (A).
 c.   If (A) is true but (R) is false.
 d.   If (A) is false but (R) is true.

 Assertion: Tertiary alcohols gets converted into an alkene instead of a carbonyl compounds in the presence of heated metallic copper.
 Reason: Tertiary alcohols prefer to undergo dehydrogenation instead of dehydration in the presence of heated copper.
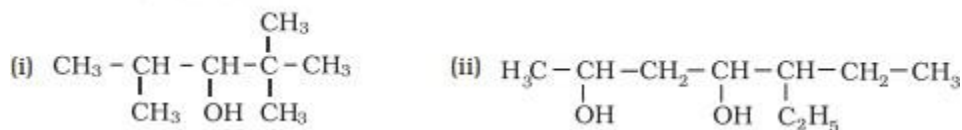
Q.19 Arrange the following compounds in increasing order of their boiling point. **2**
 a.Propan-1-ol, Butan-1-ol, Butan-2-ol and Pentan-1-ol.
 b.Pentanal, n-Butane, Ethoxyethane and Pentan-1-ol.

Q.20 How will you bring about following conversions: **2**
 a.Phenol to picric acid   b.Phenol to Aspirin

Q.21 Write IUPAC names of the following compounds: **2**

(i) $CH_3 - CH - CH - \underset{\underset{CH_3}{|}}{\overset{\overset{CH_3}{|}}{C}} - CH_3$
         $\underset{CH_3\ \ OH\ \ CH_3}{|\ \ \ \ |\ \ \ \ |}$

(ii) $H_3C - CH - CH_2 - CH - CH - CH_2 - CH_3$
         $\underset{OH}{|}$ $\underset{OH}{|}$ $\underset{C_2H_5}{|}$

Q.22 Write structures of the compounds whose IUPAC names are as follows: **2**
a. 2-Methylbutan-2-ol   b. 2,3 – Diethylphenol

Q.23 Arrange the following sets of compounds in order of their increasing boiling points: **2**
(a) Pentan-1-ol, butan-1-ol, butan-2-ol, ethanol, propan-1-ol, methanol.
(b) Pentan-1-ol, n-butane, pentanal, ethoxyethane.

Q.24 Give mechanism for the Hydration of alkenes **2**

Q.25 Give test to differentiate between following pairs: **2**
a.Phenol and Benzoic acid
b. Phenol and Aniline

Q.26 Give mechanism for the acidic dehydration of alcohols to give ethers. **3**

$$C_2H_5\text{-OH} + \text{HO-}C_2H_5 \xrightarrow{\ cnoc\ H2SO4\ ,413\ K\ } C_2H_5\text{-O-}C_2H_5 + H_2O$$
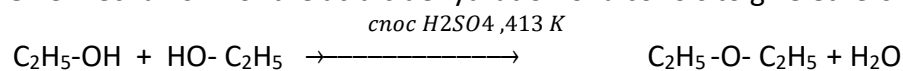
Q.27 How will you bring about following conversions: **3**
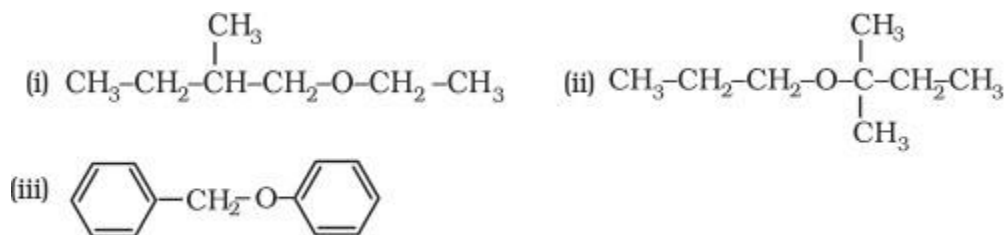a. Chlorobenzene to phenol
b.Cumene to phenol
c.Phenol to benzoquinone

OR

a.Methyl magnesium bromide to 2-Methylpropan-2-ol
b.Bromo methane to propan-2-ol
c.Chloro ethane to propan-1-ol

Q.28 Give test to differentiate between following pairs: **3**
a.Methanol and Ethanol
b.Propanol and Propan-2-ol
c.2-Methyl Propan-2-ol and Propanol

Q.29 Give the major products that are formed by heating each of the following ethers with HI. **3**

(i) $CH_3-CH_2-\overset{\overset{\textstyle CH_3}{|}}{CH}-CH_2-O-CH_2-CH_3$

(ii) $CH_3-CH_2-CH_2-O-\overset{\overset{\textstyle CH_3}{|}}{\underset{\underset{\textstyle CH_3}{|}}{C}}-CH_2CH_3$

(iii) a benzene ring $-CH_2-O-$ a benzene ring

Q.30 Give Reasons: **3**

a. In ethers R– O – R bond is slightly larger than normal tetrahedral bond angle?

b. Ethers are fairly soluble in water?

c. Anisole can not be prepared by reaction of bromobenzene or iodo benzene with sodium salt of corresponding alcohols i.e sodium ethoxide?

Q.31 Alcohols and phenols behave as weak acids due to the presence of polar -OH group in them. Phenols are, however, stronger acids than alcohols because the phenoxide ion is stabilized by resonance. Presence of electron withdrawing groups on the ring further increases the acidic strength of phenol. **4**

(a) Out of Phenol & Benzyl alcohol, which has lower value of pKa and why?

(b) Out of o-Cresol and o-Nitrophenol, which has higher value of pKa?

(c) Which compound has shorter bond length- Phenol or Cyclohexanol? Give reason.

(d) Which species out of ethoxide ion and phenoxide ion, is stronger base

Q.32 A compound (X) containing C, H and O is unreactive towards sodium. It also does not react with Schiff's reagent. On refluxing with an excess of hydroiodic acid, (X) yields only one organic product (Y). On hydrolysis, (Y) yields a new compound (Z) which can be converted into (Y) by reaction with red phosphorous and iodine. The compound (Z) on oxidation with potassium permanganate gives a carboxylic acid. The equivalent weight of this acid is 60. **4**

The following questions are multiple choice questions. Choose the most appropriate answer:

A. The compound (X) is an

(a) acid   (b) aldehyde   (c) alcohol   (d) ether

B. The IUPAC name of the acid formed is
(a) methanoic acid   (b) ethanoic acid   (c) propanoic acid   (d) butanoic acid

C. Compound (Y) is
(a) ethyl iodide   (b) methyl iodide   (c) propyl iodide   (d) mixture of (a) and (b)

D.Compound (Z) is
(a) methanol   (b) ethanol   (c) propanol   (d) butanol

Q.33   Write the equations involved in the following reactions: **5**
a.Kolbe Reaction
b.Williamson's synthesis
c. Esterification
d. Hydroboration–oxidation
e. Reimer-Tiemann reaction:

Q.34   Give Reasons: **5**
a. Phenol is more acidic than alcohols(Ethanol).
b. Phenol has small dipole moment than methanol.
c. Ortho – nitrophenol is more acidic than Ortho – methoxyphenol.
d. The presence of electron withdrawing groups such as nitro group enhances the acidic strength of phenol.
e. The presence of electron releasing groups such as alkyl group decreases the acidic strength of phenol.

Q.35   Give Reasons: **5**
a.The boiling point of alcohols and phenols are higher in comparison to hydrocarbons, ethers, and halo alkanes of comparable molecular mass.?
b.Alcohols are comparatively more soluble in water than the corresponding Hydrocarbons
c. Lower alcohols are soluble in water, higher alcohols are not.
d. The boiling point of alcohols and phenols increase with increase in number of carbon atoms.
e. In alcohols the boiling point decreases with increase in branching.

SUBJECT: COMPUTER SCIENCE

1. Differentiate between text file and binary file.

2. Differentiate between readline() and readlines().

3. Write the Python statements to open the following files:
a) a text file "example.txt" in both read and write mode.

b) a text file "try.txt" in append and read mode

4. Which of the following option is not correct?
a. if we try to read a text file that does not exist, an error occurs.
b. if we try to read a text file that does not exist, the file gets created.
c. if we try to write on a text file that does not exist, no error occurs.
d. if we try to write on a text file that does not exist, the file gets Created.

5. 5. Which of the following options can be used to read the first line of a text file Myfile.txt?

```
a.   myfile = open('Myfile.txt');
```

```
       myfile.read()
b.     myfile = open('Myfile.txt','r');
       myfile.read(n)
c.     myfile = open('Myfile.txt');
       myfile.readline()
d.     myfile = open('Myfile.txt');
       myfile.readlines()
```

6. 6. Assume that the position of the file pointer is at the beginning of 3rd line in a text file. Which of the following option can be used to read all the remaining lines?

a. myfile.read()

b. myfile.read(n)

c. myfile.readline()

d. myfile.readlines()

7. A text file student.txt is stored in the storage device. Identify the correct option(s) out of the following options to open the file in read mode.

i. myfile = open('student.txt','rb')

ii. myfile = open('student.txt','w')

iii. myfile = open('student.txt','r')

iv. myfile = open('student.txt')

8 . Suppose content of 'Myfile.txt' is:

Twinkle twinkle little star
How I wonder what you are
Up above the world so high
Like a diamond in the sky

What will be the output of the following code?

```
myfile = open("Myfile.txt")
data = myfile.readlines()
print(len(data))
myfile.close()
```

9. Suppose content of 'Myfile.txt' is

Humpty Dumpty sat on a wall

Humpty Dumpty had a great fall

All the king's horses and all the king's men

Couldn't put Humpty together again

What will be the output of the following code?

```
myfile = open("Myfile.txt")
record = myfile.read().split()
print(len(record))
myfile.close()
```

10. Suppose content of 'Myfile.txt' is

Honesty is the best policy.

What will be the output of the following code?

```
myfile = open("Myfile.txt")
x = myfile.read()
print(len(x))
myfile.close()
```

11. Suppose content of 'Myfile.txt' is

Culture is the widening of the mind and of the spirit.

What will be the output of the following code?

```
myfile = open("Myfile.txt")
x = myfile.read()
y = x.count('the')
print(y)
myfile.close()
```

P.T.O.

12. Suppose content of 'Myfile.txt' is

Ek Bharat Shreshtha Bharat

What will be the output of the following code?

```
myfile = open("Myfile.txt")
vlist = list("aeiouAEIOU")
vc=0
x = myfile.read()
for y in x:
    if(y in vlist):
            vc+=1
print(vc)
myfile.close()
```

13. Which SQL statement is used to insert new data in a database?
a. INSERT NEW
b. INSERT INTO
c. ADD NEW
d. ADD INTO

14. Given the table 'PLAYER' with the following columns:

```
PCODE    POINTS
1        50
2        NULL
3        40
```

Write the output of the following statements:
SELECT AVG(POINTS) FROM PLAYER;

15. Write the following SQL command using IN operator.
SELECT * FROM student WHERE rollno = 2 OR rollno = 3

(गृहकार्य-शरदकालीन अवकाश)2023-24

कक्षा   बारहवीं-विषयहिन्दी -

लिखित भाग

प्रश्न 1- अभिव्यक्ति और माध्यम के पाठ 3,4,5 से पाँचपाँच- बहुविकल्पीय प्रश्न तैयार करके लाएँ।

प्रश्न 2– एक गीत, कविता के बहाने, कवितावलीसौन्दर्य लिखिए ।-इन कविताओं का काव्य -

प्रश्न 3– सीबीएसई द्वारा प्रदत्त प्रतिदर्श प्रश्नपत्र को हल कीजिए ।

प्रश्न 4 – वितान के पढ़ाए गए पाठ से दस बहुविकल्पीय प्रश्न तैयार करें।

प्रश्न 5. विद्यालय पत्रिका - प्रकाशन के लिए आप अपनी लिखी कोई कविता / /लेख/कहानी पहेलियाँ/विज्ञान -सामान्य ज्ञान/खेलकूद/कोरोना के अनुभव आदि विद्यालय खुलते ही जमा करेंगे।

अभ्यास भाग

प्रश्न 1– जनसंचार से सम्बंधित भाग का अभ्यास कीजिए ।

प्रश्न 2– वितान पुस्तक के समस्त पाठों का अभ्यास कीजिए ।

प्रश्न 3– आरोह के समस्त पाठों का अभ्यास कीजिए

OBYJU'S

Holiday Homework
[class XII Maths]

(1) If $\vec{a}$ and $\vec{b}$ are two vectors such that $|\vec{a}| = \frac{1}{2}$, $|\vec{b}| = \frac{4}{\sqrt{3}}$ and $|\vec{a} \times \vec{b}| = \frac{1}{\sqrt{3}}$ then find $|\vec{a} \cdot \vec{b}|$

(2) If $\vec{a} = 3\hat{i} - \hat{j}$ and $\vec{b} = 2\hat{i} + \hat{j} - 3\hat{k}$ then express $\vec{b} = \vec{b_1} + \vec{b_2}$ where $\vec{b_1}$ is parallel to $\vec{a}$ and $\vec{b_2}$ is perpendicular to $\vec{a}$.

(3) find unit vector perpendicular to each of the vectors $\vec{a} + \vec{b}$ and $\vec{a} - \vec{b}$ where $\vec{a} = \hat{i} + \hat{j} + \hat{k}$ and $\vec{b} = \hat{i} + 2\hat{j} + 3\hat{k}$

(4) find values of p so that the lines $\frac{1-x}{3} = \frac{7y-14}{2p} = \frac{z-3}{2}$ and $\frac{7-7x}{3p} = \frac{y-5}{1} = \frac{6-z}{5}$ are at right angles.

(5) find the shortest distance bet^n lines $\vec{r} = (4\hat{i} - \hat{j}) + \lambda (\hat{i} + 2\hat{j} - 3\hat{k})$ and $\vec{r} = (\hat{i} - \hat{j} + 2\hat{k}) + u (2\hat{i} + 4\hat{j} - 5\hat{k})$

(6) If a line makes angles $90°$, $60°$, $30°$ with the x, y and z axes respectively, find its direction cosines.

⑦ Minimize $z = 3x + 2y$
Subject to Constraints: $x + y \geq 8$
$$3x + 5y \leq 15$$
$$x \geq 0, \ y \geq 0$$

⑧ max. $z = 5x + 3y$
Subject to $3x + 5y \leq 15$
$$5x + 2y \leq 10$$
$$x \geq 0, \ y \geq 0$$

⑨ If $P(A/B) = 0.3$, $P(A) = 0.4$ and
$P(B) = 0.8$, then $P(B/A)$ is equal
to = ___ .

⑩ Two dice are thrown. It is
known that the sum of numbers
on the dice is less than 6,
the probability of getting a sum
3 is ___ .

⑪ Solve questions of worksheets
and examples.

Series : A3BAB/1

SET-1

Roll No.

परीक्षार्थी प्रश्न–पत्र कोड को उत्तर–पुस्तिका के मुख–पृष्ठ पर अवश्य लिखें ।

Can idates must write the Q.P. Code on the title page of the answer-book.

नोट		NOTE	
(I)	कृपया जाँच कर लें कि इस प्रश्न–पत्र में मुद्रित पृष्ठ **12** हैं ।	(I)	Please check that this question paper contains **12** printed pages.
(II)	प्रश्न–पत्र में दाहिने हाथ की ओर दिए गए प्रश्न–पत्र कोड को छात्र उत्तर–पुस्तिका के मुख–पृष्ठ पर लिखें ।	(II)	Q.P. Code given on the right hand side of the question paper should be written on the title page of the answer-book by the candidate.
(III)	कृपया जाँच कर लें कि इस प्रश्न–पत्र में **12** प्रश्न हैं ।	(III)	Please check that this question paper contains **12** questions.
(IV)	**कृपया प्रश्न का उत्तर लिखना शुरू करने से पहले, प्रश्न का क्रमांक अवश्य लिखें ।**	(IV)	**Please write down the Serial Number of the question in the answer-book before attempting it.**
(V)	इस प्रश्न–पत्र को पढ़ने के लिए 15 मिनट का समय दिया गया है । प्रश्न–पत्र का वितरण पूर्वाह्न में 10.15 बजे किया जाएगा । 10.15 बजे से 10.30 बजे तक छात्र केवल प्रश्न–पत्र को पढ़ेंगे और इस अवधि के दौरान वे उत्तर–पुस्तिका पर कोई उत्तर नहीं लिखेंगे ।	(V)	15 minute time has been allotted to read this question paper. The question paper will be distributed at 10.15 a.m. From 10.15 a.m. to 10.30 a.m., the candidates will read the question paper only and will not write any answer on the answer-book during this period. *

भौतिक विज्ञान (सैद्धान्तिक)

PHYSICS (Theory)

निर्धारित समय : *2 घण्टे*   अधिकतम अंक : *35*

Time allowed : 2 hours   Maximum Marks : 35

सामान्य निर्देश :

निम्नलिखित निर्देशों को बहुत सावधानी से पढ़िए और उनका पालन कीजिए :

इस प्रश्न पत्र में कुल 12 प्रश्न हैं । सभी प्रश्न अनिवार्य हैं ।

(ii) *यह प्रश्न पत्र तीन खंडों में विभाजित है – खंड क, ख और ग ।*

(iii) *खण्ड–क : प्रश्न संख्या 1 से 3 प्रत्येक प्रश्न 2 अंक का है ।*

(iv) *खण्ड–ख : प्रश्न संख्या 4 से 11 तक प्रत्येक प्रश्न 3 अंक का है ।*
    खण्ड–ग : प्रश्न संख्या 12 प्रकरण अध्ययन आधारित प्रश्न है, यह प्रश्न 5 अंक का है ।

(vi) *प्रश्न पत्र में कोई समग्र विकल्प नहीं है । हालाँकि कुछ प्रश्नों में आंतरिक विकल्प प्रदान किए गए हैं ।*
    इनमें से केवल एक ही प्रश्न का उत्तर लिखिए ।

(vii) *लॉग टेबल का उपयोग कर सकते हैं, यदि आवश्यक हो, लेकिन कैल्कुलेटर के उपयोग की अनुमति नहीं है ।*

c — 3×10^{8} m/s

h - $6.63 \times 10{-34}$ JS

e- $1.6 \times 10{-19}$ C

— $471 \times 10{-7}$ T mA^{-1}

ε_o = $8.854 \times 10{-12}$ C^2 N-1 m-2

$$\frac{1}{41160} = 9 \times 10^9 \text{ N m}^2 \text{ C}^{-2}$$

इलेक्ट्रॉन का द्रव्यमान(me) $9.1 \times 10{-31}$ kg

न्यूट्रॉन का द्रव्यमान = $1.675 \times 10{-27}$ kg

प्रोटॉन का द्रव्यमान = $1.673 \times 10{-27}$ kg

आवोगाद्रो संख्या = **6.023 x**10^{23} प्रति ग्राम मोल

बोल्ट्ज़मान नियतांक = $1.38 \times 10{-23}$ JK-I

2

OBYJU'S

General Instructions :

Read the following instructions very carefully and strictly follow them : (i)   This question paper contains 12 questions. All questions are compulsory.

(ii)   This question paper is divided into three sections — Section A, B and C.

(iii) Section A : Q. Nos. 1 to 3 are of 2 marks each.

(iv) Section B : Q. Nos. 4 to 11 are of 3 marks each.

(v)   Section C : Q. No. 12 is a case study based question of 5 marks.

(vi) There is no overall choice in the question paper. However, internal choice has been provided in some of the questions. Attempt any one of the alternatives in such questions.

(vii) Use of log tables is permitted, if necessary, but use of calculator is not permitted.

$c = 3 \times 10^8$ m/s h =

6.63 x 10-34 Js e-

1.6 x 10-19 C

   — 47t x 10-7 T mA^{-1}

$\varepsilon = 8.854 \times 10{-}12$ C^{2}N^{-1} m

$$\frac{1}{47tE0} - 9 \times 10^9 \, N \, m^2 \, C{-2}$$

Mass of electron (me) = 9.1 x 10-31 kg

Mass of neutron = 1.675 x 10—27 kg

Mass of proton = 1.673 x 10-27 kg

Avogadro's number = 6.023 x 10^{23} per gram mole

Boltzmann constant = 1.38 x 10-23 JK—I

दाता और ग्राही स्तरों को चित्रित करते हुए तापमान T > 0K पर n-प्रकार और p-प्रकार के अर्धचालकों के ऊर्जा बैण्ड आरेख खींचिए । इन स्तरों के महत्व का उल्लेख कीजिए ।

1.

   2

2. a) गाइगर–मार्सडेन प्रयोग में प्रकीर्णन कोण (θ) के साथ प्रकीर्णित अल्फा कणों की संख्या (N) का विचरण दर्शाने वाला ग्राफ खींचिए । इस ग्राफ से दो निष्कर्ष निकालिए ।

   आपतित विकिरणों के लिए संग्राही प्लेट विभव के साथ प्रकाश–विद्युत धारा का विचरण दर्शाने के लिए उचित ग्राफ खींचिए :

   (i) विकिरणों की समान तीव्रता परन्तु विभिन्न आवृत्तियाँ ν_1, ν_2 और ν_3 ($\nu_1 < \nu_2 < \nu_3$)
   (ii) विकिरणों की समान आवृत्ति परन्तु विभिन्न तीव्रताएँ I_1, I_2 और I_3 ($I_1 < I_2 < I_3$)
   (b)

खण्ड – ख

उपगमन की समीपस्थ दूरी की परिभाषा लिखिए । यदि किसी α-कण की गतिज ऊर्जा दो गुनी कर दी जाए तो इस दूरी पर क्या प्रभाव पड़ेगा ?

3. -n संधि के वह अभिलक्षण लिखिए जो उसे दिष्टकरण के लिए उपयुक्त बनाते हैं । 2
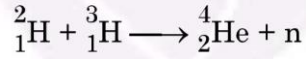
4.

   60 cm वक्रता त्रिज्या के काँच के गोलीय अवतल पृष्ठ ($_a\mu_g = 1.5$) के सामने वायु में 24 cm दूरी पर कोई बिन्दु स्रोत स्थित है । बनने वाले प्रतिबिम्ब की प्रकृति और उसकी स्रोत से दूरी ज्ञात कीजिए ।
   3

5.
   3

उपयुक्त आरेख की सहायता से उस परिघटना की व्याख्या कीजिए जिस पर कोई प्रकाशिक तन्तु कार्य करता है । प्रकाशिक तन्तु के दो उपयोगों का उल्लेख कीजिए ।

नीचे दी गयी अभिक्रिया में मुक्त हुई ऊर्जा MeV में परिकलित कीजिए

$$_1^2H + {}_1^3H \longrightarrow {}_2^4He + n$$

दिया है :

$m\left({}_1^2H\right) = 2.014102$ u

$m\left({}_1^3H\right) = 3.016049$ u

$m\left({}_2^4He\right) = 4.002603$ u

6. $m_n = 1.008665$ u   :   3

7.

    3

                    4

SECTION - A

1.   Draw energy band diagrams of n-type and p-type semiconductors at temperature T > 0K, depicting the donor and acceptor energy levels. Mention the significance of these levels. 2

2. (a) Draw the graph showing the variation of the number (N) of scattered alpha particles with scattering angle (9) in Geiger Marsden experiment. Infer two conclusions from the graph. 2

OR

(b) Plot suitable graphs to show the variation of photoelectric current with the collector plate potential for the incident radiation of
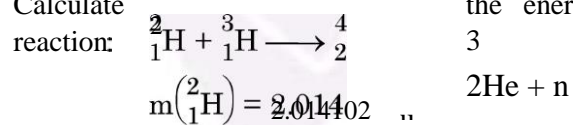
(i)   the same intensity but different frequencies VI, v2 and v3 (VI < v2 < v3)

(ii) the same frequency but different intensities Il, 12 and 13 (Il < I < 13)

3. Write the characteristics of a p-n junction which make it suitable for rectification.   2

SECTION - B

4. Define the term — Distance of closest approach. How will it be affected, for an - particle, if kinetic energy of the particle is doubled ? 3

5. A point source in air is kept 24 cm in front of a concave spherical glass surface (agg = 1.5) and radius of curvature 60 cm. Find the nature of the image formed and its distance from the point source. 3

6. Calculate the energy released in MeV in the following reaction: $_1^2H + \,_1^3H \longrightarrow \,_2^4$ 3

$$2He + n$$

Given : $m\left(_1^2H\right) = 2.014102$,,

$m\left(_1^3H\right) = 3.016049$,,

$m\left(_2^4He\right) = 4.00$

$2He = 4.002603 \text{ u m}$

$= 1.008665 \text{ u}$

7. Explain with the help of a suitable diagram, the phenomenon on which an optical fibre works. Mention any two uses of optical fibres. 3

5

(a) 600 nm तरंगदैर्ध्य का कोई समान्तर किरण पुन्ज 0.2 mm चौड़ाई की किसी झिर्री पर अभिलम्बवत आपतन करता है । यदि परिणामी विवर्तन पैटर्न का प्रेक्षण 1 m दूरी पर स्थित पर्दे पर किया जाता है, तो केंद्रीय उच्चिष्ठ से

(i) प्रथम निम्निष्ठ की दूरी, तथा

(ii) द्वितीय उच्चिष्ठ की दूरी ज्ञात कीजिए ।

8.

3

अपवर्तनांक μ_1 के पदार्थ से बना वक्रता त्रिज्या R का कोई पतला समोत्तल लेंस अपवर्तनांक μ_2 ($>\mu_1$) के समान वक्रता त्रिज्या के किसी समावतल लेंस के समाक्ष सम्पर्क में रखा गया है । ज्ञात कीजिए :

(i) इन लेंसों की क्षमताओं का अनुपात, और

(b) (ii) इस लेंस संयोजन की क्षमता और उसकी प्रकृति ।

जब किसी धातु के पृष्ठ को 330 nm तरंगदैर्ध्य के पराबैंगनी प्रकाश द्वारा प्रदीप्त किया जाता है तो उससे प्रकाशिक इलेक्ट्रॉन उत्सर्जित होते हैं । इस पृष्ठ से इलेक्ट्रॉन उत्सर्जन के लिए 3.5×10^{-19}J की निम्नतम ऊर्जा चाहिए । परिकलित कीजिए :

(i)   आपतित विकिरणों की ऊर्जा, तथा

(ii)   प्रकाशिक इलेक्ट्रॉन की गतिज ऊर्जा

9.

                                                                                    3

10.   LED के कार्यकारी सिद्धान्त का उल्लेख कीजिए I LED के दो महत्वपूर्ण लाभ और दो हानियाँ

       3

11. a   दो माध्यमों को पृथक करने वाले किसी पृष्ठ पर कोई एकवर्णी प्रकाश आपतन कर रहा है । अपवर्तन के पश्चात् इस प्रकाश की आवृत्ति प्रभावित नहीं होती परन्तु इसकी तरंगदैर्ध्य परिवर्तित हो जाती है । क्यों ?

    (ii)   किसी विद्युत–चुम्बकीय विकिरण की आवृत्ति 1.0×10^{11} Hz है । इस विकिरण को पहचानिए और इसके दो उपयोग लिखिए ।

                                         6

8.   (a) A parallel beam of light of wavelength 600 nm is incident normally on a slit of width 0.2 mm. If the resulting diffraction pattern is observed on a screen 1 m away, find the distance of 3

  (i)   first minimum, and

  (ii) second maximum, from the central maximum.

OR

  (b)   A thin equiconvex lens of radius of curvature R made of material of refractive index is kept coaxially, in contact with an equiconcave lens of the same radius of curvature and refractive index (>HI).

  Find :

   (i)   the ratio of their powers, and

   (ii)   the power of the combination and its nature.

9.   Photoelectrons are emitted from a metal surface when illuminated with UV light of wavelength 330 nm. The minimum amount of energy required to emit the electrons from the surface is 3.5 x 10-19 J. Calculate : 3 (i) the energy of the incident radiation, and (ii) the kinetic energy of the photoelectron.

10.   State the working principle of an LED. Write any two important advantages and two disadvantages of LED. 3

11.   Monochromatic light is incident on a surface separating two media. The frequency of the light after refraction remains unaffected but its wavelength changes. Why ? 3

  (ii) The frequency of an electromagnetic radiation is 1.0×10^{11} Hz.

    Identify the radiation and mention its two uses.

OR

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(b) (i) प्रकाश किरण PQ के पथ को आरेखित कीजिए जो आरेख में दर्शाए अनुसार कोण A के किसी काँच के प्रिज्म के एक फलक पर किसी कोण i पर आपतन करती है । इसके पश्चात् यह किरण दूसरे फलक से कोण e पर निर्गत होती है । इस किरण आरेख का उपयोग यह सिद्ध करने के लिए कीजिए कि जिस कोण पर किरण विचलित होती है वह कोण $\angle\delta =$

$Zi + Ze — ZA$ द्वारा दिया गया।

(ii) $Z\grave{o}$ का निम्नतम मान क्या होगा जब किरण प्रिज्म के भीतर से सममितत: गुजरती है ?

12. अध्यारोपण के सिद्धान्त का उपयोग प्रकाश तरंगों के व्यतिकरण की व्याख्या करने में किया जाता है । यह सिद्धान्त उल्लेख करता है कि किसी विशेष बिन्दु पर कई तरंगों द्वारा उत्पन्न परिणामी विस्थापन प्रत्येक तरंग द्वारा उत्पन्न अलग–अलग विस्थापनों का सदिश योग होता है । दो कलासंबद्ध प्रकाश तरंग स्रोत व्यतिकरण पैटर्न उत्पन्न करते है । थामस यंग ने किसी एकल एकवर्णी सूची छिद्र स्रोत (S) द्वारा प्रदिप्त दो सर्वसम सूची छिद्रों (S_1 और S_2) का उपयोग करके दो कलासंबद्ध स्रोत प्राप्त करने का तरीका व्युत्पन्न किया । इन स्रोतों का अपने प्रयोग में, जिसे यंग का द्वि–झिरी प्रयोग कहते हैं, उपयोग करके यंग ने व्यतिकरण पैटर्न का अध्ययन किया । इस पैटर्न में एकान्तर (हर तीसरी) चमकीली और काली फ्रिन्ज होती हैं । दो क्रमागत चमकीली अथवा काली फ्रिंजों के बीच की दूरी S_1 और S_2 के बीच की दूरी, S_1S_2 तल से पर्दे की दूरी तथा उपयोग किए गए प्रकाश की तरंगदैर्घ्य पर निर्भर करती है ।

5

नीचे दी गयी तरंगों पर विचार कीजिए :

(i) $yI = a \sin ot$

(ii) $Y2 = a \sin 20t$

(iii) $Y3 = a \sin(20t + þ)$

(iv) $y_4 = a \sin\left(4\omega t + \dfrac{\pi}{2}\right)$

दो स्रोतों, S_1 और S_2 आने वाली तरंगों के किस युगल से व्यतिकरण होगा ?

(A) (i) और (ii)   (B) (ii) और (iii)   (A)

(i) (B) (ii) (iii) (C) (iii) (iv) (D) (iv) (i)

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(b) (i) Trace the path of a ray of light PQ which is incident at an angle i on one face of a glass prism of angle A. It then emerges out from the other face at an angle e. Use the ray diagram to prove that the angle through which the ray is deviated is given by Zö

$$= \angle i + \angle e - \angle A.$$

(ii) What will be the minimum value of if the ray passes symmetrically through the prism ?

SECTION - C
CASE STUDY

12. The principle of superposition is used to understand the phenomenon of interference of light waves. The principle states that at a particular point, the resultant displacement produced by a number of waves is the vector sum of the displacements produced by each wave. Light waves from two coherent sources produce interference pattern. Thomas Young devised a way to obtain two coherent sources using two identical pinholes (Sl and S2) illuminated by a single monochromatic pinhole source S. Using these sources in his experiment known as Young's double slit experiment, Young studied the interference pattern. The pattern consists of alternate bright and dark fringes. The distance between two successive bright or dark finges depends on the distance between Sl and S2, the distance of the screen from the plane of SIS2 and the wavelength of light used. 5

I. Consider the following waves :
(i) $= a \sin \omega t$
(ii) $Y2 = a \sin 20t$ (iii) $y3 = a \sin (20t + \phi)$

(iv) $y4 = a \sin 40t + —$

Which pair of the waves coming from two sources Sl and S2 will produce interference ?

(A) (i) and (ii)   (B) (ii) and (iii)
(C) (iii) and (iv)   (D) (iv) and (i)

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11. दो कलासंबद्ध स्रोतों से निर्गमन करने वाली दो प्रकाश तरंगें जिनमें प्रत्येक की तीव्रता समान I_0 जिनके बीच $\lambda/4$ का पथान्तर है, किसी बिन्दु पर मिलती है । इस बिन्दु पर परिणामी तीव्रता होगी

(B) I_0

(C) $2 I_0$ (D) $4 I_0$

वन्दना ने यंग का द्वि-झिर्री प्रयोग क्रमागत रूप से नारंगी, हरे और लाल प्रकाश का उपयोग करके किया । यदि इन तीनों प्रकरण में फ्रिन्ज चौड़ाई क्रमशः ω_1, ω_2 और ω_3 हैं, तो नीचे दिया गया

III. कौन सा संबंध सही है ?

(A) $\omega_2 > \omega_1 > \omega_3$

(B) $\omega_1 > \omega_2 > \omega_3$

(C) $\omega_2 > \omega_3 > \omega_1$

(D) $\omega_3 > \omega_1 > \omega_2$

यंग के द्वि-झिर्री प्रयोग में यदि झिर्री-पृथकन 0.8 mm है तथा व्यतिकरण पैटर्न झिर्रियों S_1 और S_2 के तल से 50 cm दूरी पर स्थित पर्दे पर प्राप्त होता है । यदि प्रथम चमकीली फ्रिन्ज केन्द्रीय उच्चिष्ठ से 0.4 mm दूरी पर बनती है, तो उपयोग किए गए प्रकाश की तरंगदैर्ध्य है

IV.

(A) 480 nm (B) 560 nm (C) 640 nm (D) 680 nm

नीचे दिए गए प्रचालनों के कारण यंग के द्वि-झिर्री प्रयोग में फ्रिन्जों के कोणीय पृथकन पर होने वाले प्रभाव पर विचार कीजिए :

(i)   पर्दे को झिर्रियों के तल से दूर ले जाने पर

(ii)   फ्रिन्जों के प्रेक्षित होने तक दोनों झिर्रियों के बीच पृथकन में वृद्धि करना ।

नीचे दिया गया कौन सा विकल्प सही है ?

(A)   यह दोनों प्रकरणों में नियत रहता है ।

(B)   यह दोनों प्रकरणों में घट जाता है ।

(C)   यह पहले प्रकरण में नियत रहता है परन्तु दूसरे प्रकरण में घट जाता है ।

V. (D)   यह पहले प्रकरण में घटता है परन्तु दूसरे प्रकरण में नियत रहता है ।

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Il. Two light waves of the same intensity 10 each, having a path difference of R/4, emanating from two coherent sources, meet at a point. The resultant intensity at the point will be (A) Zero   (B) 10

(C) 2 10   (D) 410

111. Vandana performs Young's double slit experiment by using orange, green and red lights successively. If the fringe widths measured in the three cases are 01, 02 and 03 respectively, then which of the following is correct ?

(A)   02 > 01 > 03
(B)   01 > 02 > 03
(C)   02 > 03 > 01
(D)   03 > (DI > 02

V.   In a Young's double slit experiment, the slit separation is 0.8 mm and the interference pattern is obtained on a screen kept 50 cm from the plane of the slits Sl and S2. If the first bright fringe is formed 0.4 mm from the central maximum, the wavelength of light used is (A) 480 nm (B) 560 nm

(C) 640 nm   (D) 680 nm

VI.   Consider the effect on the angular separation of the fringes in a
       Young's double slit experiment due to the following operations :

(i)   the screen is moved away from the plane of the slits,
(ii)   the separation between the two slits is increased till fringes are observed.
Which of the following options is correct ? It remains constant in both
       cases.

(B) It decreases in both cases.

(C)It remains constant in (i) but decreases in (ii). (D) It decreases in (i) but remains constant in (ii).

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