



# SUMMER ASSIGNMENTS SESSION 2024-25

## CLASS XII

### SUBJECT: ENGLISH

Figure it out for yourself, my lad,  
You've all that the greatest of men have had,  
Two arms, two hands, two legs, two eyes,  
And a brain to use if you would be wise.  
With this equipment they all began,  
So start for the top and say "I can."

Now work on the following questions:-

Q1. Make a comic strip of the chapter 'The Last Lesson' on an A4 size sheet.

Q2. Make a mind map of the chapter 'The Last Lesson'. ( Do this question in your English Notebook).

Q.3. Imagine the mother gets to know of the poet persona's fears. Write a letter, as the mother, telling the daughter why she must not dwell on these fears.

(Reference –My Mother at Sixty Six)

You may begin this way:

Pallipuram

Cochin, Kerala

29 August '70

My dear Kamala

I am writing to you because when you left me at the airport, I felt something wasn't right. Judging by how little you spoke that day .....

(Continue).....

With Love

Amma

Q 4. Write an article on 'Language is the means of suppression' in about 120-150 words. ( Reference 'The Last Lesson')

Q 5. Write the format of each of the below given advanced writing skills . Write an example of each. (Do this question in your English notebook)

- NOTICE
- REPORT
- INVITATION
- LETTER --- To The Editor

NOTE-

- All the questions should be done in A-4 size sheets (Except Q. No.2 & 5).
- Insert all the sheets in a folder.



# **CLASS XII**

## **SUBJECT: ENGLISH**

### **ART INTEGRATED PROJECT**

#### **CLASS - XII**

**(Any one of the following)**

- **Prepare a Virtual Bulletin Board with information of the Tourism in Manipur and Nagaland .Also create a map to reach the famous tourism destination of these states.**
- **Prepare a PPT on ‘MEDICAL TOURISM IN INDIA- A NEW AVENUE’ ( 15-20 slides) . It should include**
  - **Background & meaning**
  - **Opportunities for Medical Tourism,**
  - **Challenges and Threats**
  - **Top Destinations**
  - **Case Studies (Min,2)**
  - **Conclusion**

#### **Note-**

- **Include all the important facts and features associated with the topic.**
- **Last date for submission:- 13th June, 2024**



# CLASS XII

## SUBJECT: HINDI

प्रश्न 1. महादेवी वर्मा जी द्वारा रचित किन्हीं दो पुस्तकों को पढ़कर अपनी समीक्षा लिखें।

- 1 रश्मि
- 2 नीरजा
- 3 निहार
- 4 यामा

\*प्रश्न 2. 6. वर्तमान में प्रचलित इन दो पत्रिकाओं की समीक्षा लिखिए।

1. गृहशोभा
2. सरिता

\*प्रश्न 3 आपके जीवन की प्रेरणा किसी व्यक्ति विशेष के जीवन पर प्रकाश डालते हुए चित्र सहित लेख लिखे।

निम्नलिखित गतिविधियों को रंगीन A4 साइज शीट पर बनाइए-\*

1. अपनी स्कूल की लाइब्रेरी या खेल के मैदान पर एक आकर्षक फीचर लिखिए।  
(200-250 शब्द)

2. अपने विद्यालय और मोहल्ले के आसपास की समस्याओं (जैसे पानी की कमी, बिजली कटौती, खराब सड़कें, साफ सफाई आदि) पर नजर डालें। किसी एक विषय पर अखबार में भेजने हेतु रिपोर्ट तैयार करें।

3. अपनी पसंद के समाचार पत्र से कोई 5 समाचार चुनकर उन्हें \*बड़ी रंगीन शीट\* पर चिपकाइए तथा निम्न बिंदुओं के आधार पर उनका तुलनात्मक अध्ययन कीजिए-

- i) कितने समाचार उल्टा पिरामिड शैली में लिखे गए हैं ?
- ii) हर समाचार में कितने पैराग्राफ है ?
- iii) क्या पैराग्राफ की संख्या कम या अधिक है ?



# CLASS XII

## SUBJECT: COMPUTER SCIENCE

1. Write a program to find all prime numbers up to given number.
2. Write a program to convert decimal number to binary.
3. Write a program to convert binary to decimal.
4. Write a program to input two complex numbers and to find sum of the given complex numbers.
5. Write a program to input two complex numbers and to implement multiplication of the given complex numbers.
6. Write a program to find sum of two distances with feet and inches.
7. Write a program to find difference between two times with hours, minutes and seconds.
8. Write a program to find the sum of all digits of the given number.
9. Write a program to find the reverse of that number.
10. Write a program to input username and password and to check whether the given username and password are correct or not.
  - a) To count the number of characters in the string.
  - b) To change the first character of the string in capital letter.
  - c) To check whether given character is letter or a number.
  - d) To change lower case to upper case letter.
  - e) Change one character into another character.



# CLASS XII

## SUBJECT: PHYSICAL EDUCATION

**Topic - Practice of SAI Khelo India Fitness Test during summer at home.**

**Aim- To understand and promote healthy and fit lifestyle.**

**Objectives-**

- To build cardio vascular endurance,
- To improve muscular endurance,
- To develop strength,
- To improve flexibility,
- To increase Neuromuscular coordination,
- To maintain healthy body weight.

**Dear Athletes/Players,**

Summer is the best time to storm your brain as there is no pressure on you and this is the best leisure time for you.

So keeping this in mind, I am sharing with you an assignment on SAI Khelo India Fitness Test.

For this assignment first you need to read the PDF file of SAI Khelo India Fitness Test very carefully and after that make a score card of your performance, in which on day one you need to perform all the tests and feed the score whatever you scored of different tests. Then practice of all the tests on regular basis and update your score card every week(for 4 weeks).

So in the end to the summer you will reach at your final score in your score card.

Make a comparison of your progress and right a short note of your assignment journey and submit it in June month.

**Regards.**

**Precautionary measures -**

- Avoid running on danger areas like roof, traffic road etc.
- Avoid exercise if not well or injured.
- Avoid exercise after meal, make 2.5 to 3 hours of gape after heavy meal(lunch).
- Practice with proper technique as suggested in PDF file.
- Exercise progression should be gradual.
- Avoid over exertion during practice.
- Have a healthy meal in your diet.



# CLASS XII

## SUBJECT: MATHEMATICS

01.  $\frac{d}{dx}(\log \tan x) =$

- a.  $2\sec 2x$
- b.  $2\csc 2x$
- c.  $\sec 2x$
- d.  $\csc 2x$

02.  $\frac{d}{dx} \cos^{-1} \frac{x-x^{-1}}{x+x^{-1}} =$

- a.  $\frac{1}{1+x^2}$
- b.  $\frac{-1}{1+x^2}$
- c.  $\frac{2}{1+x^2}$
- d.  $\frac{-2}{1+x^2}$

03.  $\frac{d}{dx} \log(\log x) =$

- a.  $\frac{x}{\log x}$
- b.  $\frac{\log x}{x}$
- c.  $(x \log x)^{-1}$
- d. None of these

04.  $\frac{d}{dx} \left( \sqrt{x} + \frac{1}{\sqrt{x}} \right)^2 =$

- a.  $1 - \frac{1}{x^2}$
- b.  $1 + \frac{1}{x^2}$
- c.  $1 - \frac{1}{2x}$
- d. None of these

05. If  $y = x + \frac{1}{x}$ , then

- a.  $x^2 \frac{dy}{dx} + xy = 0$
- b.  $x^2 \frac{dy}{dx} + xy + 2 = 0$
- c.  $x^2 \frac{dy}{dx} + xy = 2$
- d. None of these

$$x^2 \frac{dy}{dx} - xy + 2 = 0$$

07. If  $y = 1 + x + \frac{x^2}{2} + \frac{x^3}{3} + \dots + \frac{x^n}{n!}$ , then  $\frac{dy}{dx} =$

- a.  $y$
- b.  $y + \frac{x^n}{n!}$
- c.  $y - \frac{x^n}{n!}$
- d.  $y - 1 - \frac{x^n}{n!}$

08.  $\frac{d}{dx} \left( \tan^{-1} \frac{\cos x}{1 + \sin x} \right) =$

- a.  $-\frac{1}{2}$
- b.  $\frac{1}{2}$
- c.  $-1$
- d.  $1$

09. If  $x = a(t - \sin t)$  and  $y = a(1 - \cos t)$ , then  $\frac{dy}{dx} =$

- a.  $\tan\left(\frac{t}{2}\right)$
- b.  $-\tan\left(\frac{t}{2}\right)$
- c.  $\cot\left(\frac{t}{2}\right)$
- d.  $-\cot\left(\frac{t}{2}\right)$

10. If  $y = x^x$ , then  $\frac{dy}{dx} =$

- a.  $x^x \log x$
- b.  $x^x \left(1 + \frac{1}{x}\right)$
- c.  $(1 + \log x)$
- d.  $x^x \log x$

11. If  $y = \sqrt{\frac{1+x}{1-x}}$ , then  $\frac{dy}{dx} =$



# CLASS XII

## SUBJECT: MATHEMATICS

a.  $\frac{2}{(1+x)^{1/2}(1-x)^{3/2}}$

b.  $\frac{1}{(1+x)^{3/2}(1-x)^{3/2}}$

c.  $\frac{1}{2(1+x)^{1/2}(1-x)^{3/2}}$

d.  $\frac{1}{(1+x)^{3/2}(1-x)^{1/2}}$

12. If  $x = \frac{1-t^2}{1+t^2}$  and  $y = \frac{2at}{1+t^2}$ , then  $\frac{dy}{dx} =$

a.  $\frac{a(1-t^2)}{2t}$

b.  $\frac{a(t^2-1)}{2t}$

c.  $\frac{a(t^2+1)}{2t}$

d.  $\frac{a(t^2-1)}{t}$

13. If  $x = a \left( \cos t + \log \tan \frac{t}{2} \right)$ ,  $y = a \sin t$ , then

$\frac{dy}{dx} =$

a.  $\tan t$

b.  $-\tan t$

c.  $\cot t$

d.  $-\cot t$

14. If  $y = \sin^{-1} \frac{2x}{1+x^2} + \sec^{-1} \frac{1+x^2}{1-x^2}$ , then

$\frac{dy}{dx} =$

a.  $\frac{4}{1-x^2}$

b.  $\frac{1}{1+x^2}$

c.  $\frac{4}{1+x^2}$

d.  $\frac{-4}{1+x^2}$

15. If  $y = e^{x+e^{x+e^{x+\dots}}}$ , then  $\frac{dy}{dx} =$

a.  $\frac{y}{1-y}$

b.  $\frac{1}{1-y}$

c.  $\frac{y}{1+y}$

d.  $\frac{y}{y-1}$

If  $x^y = e^{xy}$ , then  $\frac{dy}{dx} =$

16.

a.  $\log x [\log(ex)]^{-2}$

b.  $\log x [\log(ex)]^2$

c.  $\log x \cdot (\log x)^2$

d. None of these

If  $y = \sin^{-1} \left( x\sqrt{1-x} + \sqrt{x}\sqrt{1-x^2} \right)$  Then

17.

$\frac{dy}{dx} =$

a.  $\frac{-2x}{\sqrt{1-x^2}} + \frac{1}{2\sqrt{x-x^2}}$

b.  $\frac{-1}{\sqrt{1-x^2}} - \frac{1}{2\sqrt{x-x^2}}$

c.  $\frac{1}{\sqrt{1-x^2}} + \frac{1}{2\sqrt{x-x^2}}$

d. None of these.

If  $y = A \cos nx + B \sin nx$ , then  $\frac{d^2y}{dx^2} =$

18.

a.  $n^2y$

b.  $-y$

c.  $-n^2y$

d. None of these

If  $2^x + 2^y = 2^{x+y}$ , then  $\frac{dy}{dx} =$

19.

a.  $2^x + 2^y \frac{2^{x+y}}{2^{x-1}}$

b.  $2^{x+y} \frac{2^y - 1}{1 - 2^x}$

c.  $\frac{2^x + 2^y}{2^x - 2^y}$

d. None of these



# CLASS XII

## SUBJECT: MATHEMATICS

20.  $\frac{d}{dx} \log |x| = \dots (x \neq 0)$

a.  $\frac{1}{x}$                       b.  $-\frac{1}{x}$

c.  $x$                          d.  $-x$

If  $\cos(x+y) = y \sin x$ , then  $\frac{dy}{dx} =$

21.

a.  $-\frac{\sin(x+y) + y \cos x}{\sin x + \sin(x+y)}$

b.  $\frac{\sin(x+y) + y \cos x}{\sin x + \sin(x+y)}$

c.  $\frac{y \cos x - \sin(x+y)}{\sin x - \sin(x+y)}$

d. None of these

If  $y = 1 + x + \frac{x^2}{2!} + \frac{x^3}{3!} + \dots^{\infty}$ , then  $\frac{dy}{dx} =$

22.

a.  $y$                          b.  $y-1$

c.  $y+1$                     d. None of these

23. If  $f(x) = x^2 - 3x$ , then the points at which  $f(x) = f'(x)$  are

a. 1, 3                      b. 1, -3

c. -1, 3                    d. None of these

24. If  $f(x) = mx + c$ ,  $f(0) = f'(0) = 1$ , then  $f(2) =$

a. 1                         b. 2

c. 3                         d. -3

$x\sqrt{1+y} + y\sqrt{1+x} = 0$ , then  $\frac{dy}{dx} =$

25.

a.  $1+x$                     b.  $(1+x)^2$

c.  $-(1+x)^2$             d.  $-(1+x)$

26. If

$$y = \sec^{-1} \left( \frac{\sqrt{x+1}}{\sqrt{x-1}} \right) + \sin^{-1} \left( \frac{\sqrt{x-1}}{\sqrt{x+1}} \right)$$
 then

$$\frac{dy}{dx} =$$

a. 0

b.  $\frac{1}{\sqrt{x+1}}$

c. 1

d. None of these

$$\frac{d}{dx} e^{x^2 \log x} =$$

27.

a.  $e^x \cdot x^2(x+3)$

b.  $e^x \cdot x(x+3)$

c.  $e^x + \frac{3}{x}$

d. None of these

28.

$$\frac{d}{dx} \tan^{-1}(\sec x + \tan x) =$$

a. 1                         b.  $\frac{1}{2}$

c.  $\cos x$                     d.  $\sec x$

29.

$$\frac{d}{dx} (e^x \log \sin 2x) =$$

a.  $e^x(\log \sin 2x + 2 \cot 2x)$

b.  $e^x(\log \cos 2x + 2 \cot 2x)$

c.  $e^x(\log \cos 2x + \cot 2x)$

d. None of these.

30.

Differential coefficient of  $\sin^{-1} x$  w. r. t.  $\cos^{-1} \sqrt{1-x^2}$

a. 1

b.  $\frac{1}{1+x^2}$

c. 2

d. None of these



# CLASS XII

## SUBJECT: MATHEMATICS

31. If  $y = \sqrt{(1-x)(1+x)}$ , then

a.  $(1-x^2) \frac{dy}{dx} - xy = 0.$

b.  $(1-x^2) \frac{dy}{dx} + xy = 0.$

c.  $(1-x^2) \frac{dy}{dx} - 2xy = 0.$

d.  $(1-x^2) \frac{dy}{dx} + 2xy = 0.$

32. If  $y = x^{\sqrt{x}}$ , then  $\frac{dy}{dx} =$

a.  $x^{\sqrt{x}} \frac{2 + \log x}{2\sqrt{x}}$

b.  $x^{\sqrt{x}} \frac{2 + \log x}{\sqrt{x}}$

c.  $\frac{2 + \log x}{2\sqrt{x}}$

d. None of these



# CLASS XII

## SUBJECT: BIOLOGY

### Chapter 1 - Sexual reproduction in flowering plants.

Answer the following questions:

1. Define the terms & write their functions —

\*Germ Pore, \*Coleoptile, \*Coleorhiza, \*Nucellus, \*Endothecium.

2. State advantages and disadvantages of cleistogamy to the plant.

3. Describe in sequence the process of microsporogenesis in angiosperms.

4. State the similarity and differences between geitonogamy & xenogamy.

Why do Cleistogamous flowers assure seed sets?

5. Which is the most common type of endosperm? Give its characteristics & process of development?

6. Define apomixis. Mention two applications of apomicts in hybrid seed industry. How it is different from polyembryony?

7. Enumerate any six adaptive floral characteristics of a wind pollinated (anemophilous) plant.

8. How are seed advantageous to angiosperms?

9. Describe the process of Megasporogenesis in angiosperms until 8-nucleate stage.

10. Describe the characteristic features of an insect pollinated flower.

11. Describe the development of endosperm after double fertilization in an angiosperm. Why endosperm development does precede that of zygote?

12. Practice of all labeled diagrams and examples given in NCERT book.

13. Prepare One Investigatory Project (based on 12th Biology NCERT Syllabus)

14. Also answer, all the competency based questions attached herewith.

15. Preparation of practical file.



# CLASS XII

## SUBJECT: BIOLOGY

1

Read the following and answer any four questions from 1(i) to 1(v) given below:

The pollen grains or microspores are the male reproductive bodies of a flower and are contained in the pollen sac or microsporangia. Each pollen grain consists of a single microscopic cell, possessing two coats : the exine and the intine. The exine of a pollen grain is made of chemically stable material. Because of this, pollen grains are often very well preserved for thousands of years in soil and sediments.

- (i) One of the most resistant biological material present in the exine of pollen grain is
- (a) pectocellulose
  - (b) sporopollenin
  - (c) suberin
  - (d) cellulose.
- (ii) The exine possesses one or more thin places known as
- (a) raphe
  - (b) germ pores
  - (c) hilum
  - (d) endothecium.
- (iii) What is the function of germ pore?
- (a) Emergence of radicle
  - (b) Absorption of water for seed germination
  - (c) Initiation of pollen tube
  - (d) All of these
- (iv) What is the key advantage to the plant for having such strong pollen grain walls?
- (a) It protects the vital genetic material in the pollen grain.
  - (b) It allows pollen to serve as a valuable fossil record for the study of ancient plants.
  - (c) It prevents the pollen tube from growing out before the pollen grain reaches the stigma of a compatible species.
  - (d) It gives weight to the pollen grain, allowing it to cling better to the body surfaces of insect pollinators.
- (v) The number of germ pores in dicots and monocots respectively are
- (a) one and three
  - (b) three and two
  - (c) two and three
  - (d) three and one.

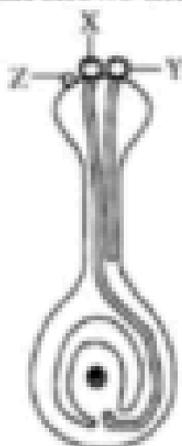


# CLASS XII

## SUBJECT: BIOLOGY

Read the following and answer any four questions from 2(i) to 2(v) given below:

Cross pollination is the transfer of pollen grains from the anther of a one flower to the stigma of a genetically different flower. It is performed with the help of an external agency which may be abiotic (e.g., wind, water) or biotic (e.g., insects, birds, bats, snails). The diagram shows the carpel of an insect pollinated flower.



- (i) What is the most likely reason for non germination of pollen grain Z?
- (a) Pollen grains X and Y were brought to the stigma earlier, therefore, their germination inhibited the germination of pollen grain Z.
  - (b) Pollen grain Z was brought to the flower by wind, while pollen grains X and Y were brought to the flower by insect.
  - (c) Pollen grain Z lacks protrusions that allow it to adhere properly onto the stigma surface.
  - (d) Pollen grain Z comes from a flower of an incompatible species.
- (ii) Which of the following best describes the function of the pollen tube?
- (a) It acts as a conduit to transport male gametes from the anther to the ovule.
  - (b) It acts as a conduit to transport male gametes from the stigma to the ovule.
  - (c) It contains key nutrients that serve to nourish the newly-formed zygote.
  - (d) It digests the tissues of the stigma, style and ovary.
- (iii) Pollination of a flower in which the pollen is carried by an insect is called
- (a) anemophily
  - (b) ornithophily
  - (c) entomophily
  - (d) malacophily.
- (iv) Refer to the given characteristics of some flowers.
- A. The stamens hang out of the flower, exposing the anthers to the wind.
  - B. The pollen grains are tiny and light.
  - C. The flower has a sweet scent.
  - D. The flower petals are brightly coloured.
- How many of the above characteristics are of insect-pollinated flower?
- (a) One
  - (b) Two
  - (c) Three
  - (d) Four
- (v) Pollenkitt is generally found in
- (a) anemophilous flowers
  - (b) entomophilous flowers
  - (c) ornithophilous flowers
  - (d) malacophilous flowers.

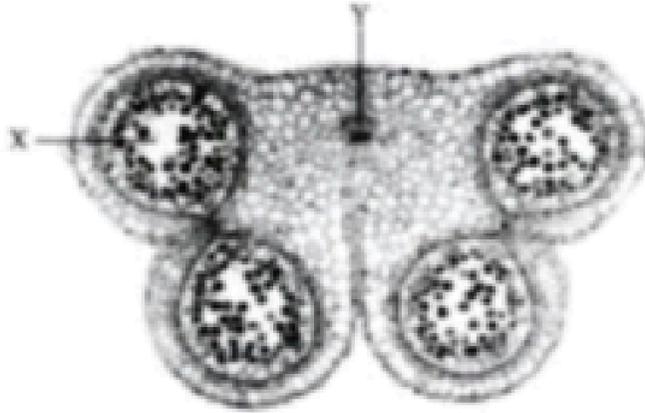


# CLASS XII

## SUBJECT: BIOLOGY

Read the following and answer any four questions from 3(i) to 3(v) given below:

Many adaptations are found in flowers to achieve certain kind of pollination. The pollination achieved by insects is known as entomophily. The given diagram shows the cross-section of an anther of an insect pollinated flower.



(i) Which of the following is/are the function(s) of structure Y?

- A. To carry waste products away from the anther.
- B. To supply oxygen to the cells of the anther.
- C. To transport food and mineral salts to the anther.
- D. To supply water to the anther.

(a) C only

(b) C and D only

(c) A, B and D only

(d) A, B, C and D

(ii) Which of the following most accurately describes the structures found in compartment X?

- (a) They contain two haploid nuclei resulting from meiosis.
- (b) They contain two haploid nuclei resulting from mitosis.
- (c) They contain two haploid male gametes resulting from mitosis.
- (d) They produce abundant quantities of pollen to make up for pollen grains that might be removed by the wind.

(iv) Which of the following are likely characteristics of the structures found in X and stamens of this plant?

### Structure of X

- (a) Abundant and light
- (b) Rough surfaces
- (c) Light and sticky
- (d) Coarse and sticky

### Stamens

- Pendulous
- Non-pendulous
- Pendulous
- Protrude outside the flower

(v) Spiny or sticky pollen grains and large, attractively coloured flowers are associated with

(a) hydrophily

(b) entomophily

(c) ornithophily

(d) anemophily.



# CLASS XII

## SUBJECT: CHEMISTRY

Active Engagement of young minds

A) Prepare a project report on any one of the following topics:

(i) Study of the presence of oxalate ions in guava fruit at different stages of ripening.

(ii) Study of quantity of casein present in different samples of milk.

(iii) Preparation of soyabean milk and its comparison with the natural milk with respect to curd formation effect of temperature etc.

(iv) Study of the effect of potassium bisulphate as food preservative under various conditions (temperature, concentration, time etc)

(v) Study of digestion of starch by salivary amylase and effect of pH & temperature on it.

(vi) Comparative study of rate of fermentation of following materials wheat flour, gram flour, potato juice, carrot juice etc.

(vii) Extraction of essential oils present in saunf (aniseed), Ajwain (carum), Illaichi (cardimoni)

(viii) Study of common food adulterant in fat, oil butter, sugar, turmeric powder, chilli powder & pepper.

Or

any other topic of your interest.

Complete the project under the following headings:

Title page (Aim of the Project)

Certificate

Acknowledgement

Index

Theory

Procedure

Observation

Result

Precautions

Conclusions

Bibliography

B) Complete the Salt Analysis Experiments in Lab Manuals.

C) Prepare the Power Point Presentation (PPT) on BIOMOLECULES.

D) Prepare Mind map of Chapter "Solutions".



# CLASS XII

## SUBJECT: CHEMISTRY

D) Do the worksheet based on CHAPTER -SOLUTIONS

1. Define the following modes of expressing the concentration of a solution. Which of these modes are independent of temperature and why?

(i) w/w (mass percentage) (v) x (mole fraction)

(ii) V/V (volume percentage) (vi) M (Molarity)

2. Raoult's law explain how the total vapour pressure over the solution is related to mole fraction of components in the following solutions.

(i)  $\text{CHCl}_3$  (l) and  $\text{CH}_2\text{Cl}_2$ (l) (ii)  $\text{NaCl}$ (s) and  $\text{H}_2\text{O}$  (l)

3. Explain the terms ideal and non-ideal solutions in the light of forces of interactions operating between molecules in liquid solutions.

4. Why is it not possible to obtain pure ethanol by fractional distillation?

What general name is given to binary mixtures which show deviation from Raoult's law and whose components cannot be separated by fractional distillation. How many types of such mixtures are there?

5. Suman took two glasses of water from a water filter. She cools one glass in a fridge and warms the other glass on a stove. Which glass of water will hold more dissolved oxygen? Explain using Henry's law.

6. Two liquids X and Y on mixing form an ideal solution. The vapour pressure of the solution containing 2 mol of X and 1 mol of Y is 550 mm Hg. But when 4 mol of X and 1 mole of Y are mixed, the vapour pressure of solution thus formed is 560 mm Hg. What will be the vapour pressure of pure X and pure Y at this temperature?

7. What would be the molar mass of a compound if 6.21 g of it dissolved in 24.0 g of chloroform form a solution that has a boiling point of  $68.04^\circ\text{C}$ . The boiling point of pure chloroform is  $61.7^\circ\text{C}$  and the boiling point elevation constant,  $K_b$  for chloroform is  $3.63^\circ\text{C}/\text{m}$ .

8. A solution of glycerol ( $\text{C}_3\text{H}_8\text{O}_3$ ) in water was prepared by dissolving some glycerol in 500 g of water. This solution has a boiling point of  $100.42^\circ\text{C}$ . What mass of glycerol was dissolved to make this solution? ( $K_b$  for water =  $0.512 \text{ K kg mol}^{-1}$ )

9. (a) State Raoult's law for a solution containing volatile components. How does Raoult's law become a special case of Henry's law?

10. What type of deviation is shown by a mixture of ethanol and acetone? Give reason.



# CLASS XII

## SUBJECT: CHEMISTRY

11. A solution of glucose (molar mass =  $180 \text{ g mol}^{-1}$ ) in water is labelled as 10% (by mass). What would be the molality and molarity of the solution? (Density of solution =  $1.2 \text{ g mL}^{-1}$ )

### MCQ's Type

12 Maximum amount of a solid solute that can be dissolved in a specified amount of a given liquid solvent does not depend upon \_\_\_\_\_.

(i) Temperature (ii) Nature of solute (iii) Pressure (iv) Nature of solvent

13. Low concentration of oxygen in the blood and tissues of people living at high altitude is due to \_\_\_\_\_.

(i) low temperature (ii) low atmospheric pressure  
(iii) high atmospheric pressure (iv) both low temperature and high atmospheric pressure

14. Considering the formation, breaking and strength of hydrogen bond, predict which of the following mixtures will show a positive deviation from Raoult's law?

(i) Methanol and acetone. (ii) Chloroform and acetone. (iii) Nitric acid and water. (iv) Phenol and aniline.

15. Colligative properties depend on \_\_\_\_\_.

- the nature of the solute particles dissolved in solution.
- the number of solute particles in solution.
- (iii) the physical properties of the solute particles dissolved in solution.
- (iv) the nature of solvent particles.

16. Value of Henry's constant  $K_H$  \_\_\_\_\_.

(i) increases with increase in temperature.  
(ii) decreases with increase in temperature.  
(iii) remains constant.  
(iv) first increases then decreases.

17. The value of Henry's constant  $K_H$  is \_\_\_\_\_.

(i) greater for gases with higher solubility. (ii) greater for gases with lower solubility. (iii) constant for all gases. (iv) not related to the solubility of gases



# CLASS XII

## SUBJECT: CHEMISTRY

18. On the basis of information given below mark the correct option.

Information:

(A) In bromoethane and chloroethane mixture intermolecular interactions of A–A and B–B type are nearly same as A–B type interactions.

(B) In ethanol and acetone mixture A–A or B–B type intermolecular interactions are stronger than A–B type interactions.

(C) In chloroform and acetone mixture A–A or B–B type intermolecular interactions are weaker than A–B type interactions.

(i) Solution (B) and (C) will follow Raoult's law.

(ii) Solution (A) will follow Raoult's law.

(iii) Solution (B) will show negative deviation from Raoult's law.

(iv) Solution (C) will show positive deviation from Raoult's law.

### Assertion and Reason Type

Note : In the following questions a statement of assertion followed by a statement of reason is given. Choose the correct answer out of the following choices.

(i) Assertion and reason both are correct statements and reason is correct explanation for assertion

(ii) Assertion and reason both are correct statements but reason is not correct explanation for assertion.

(iii) Assertion is correct statement but reason is wrong statement.

(iv) Assertion and reason both are incorrect statements.

(v) Assertion is wrong statement but reason is correct statement.

19. Assertion : Molarity of a solution in liquid state changes with temperature.

Reason : The volume of a solution changes with change in temperature.

20. Assertion : When methyl alcohol is added to water, boiling point of water increases.

Reason : When a volatile solute is added to a volatile solvent elevation in boiling point is observed.



# CLASS XII

## SUBJECT: PHYSICS

Write the following Experiments and Activities in your Practical File:

### SECTION-A

1- To determine resistivity of two / three wires by plotting a graph for potential difference versus current.

2- To find resistance of a given wire / standard resistor using metre bridge.

3- To verify the laws of combination (series) of resistances using a metre bridge.

OR

To verify the laws of combination (parallel) of resistances using a metre bridge.

4- To determine resistance of a galvanometer by half-deflection method and to find its figure of merit.

### Activities

1-To assemble the components of a given electrical circuit.

2-To study the variation in potential drop with length of a wire for a steady current.

3-To draw the diagram of a given open circuit comprising at least a battery, resistor/rheostat, key, ammeter and voltmeter. Mark the components that are not connected in proper order and correct the circuit and also the circuit diagram.

### SECTION-B

1- To find the value of  $v$  for different values of  $u$  in case of a concave mirror and to find the focal length.

2- To find the focal length of a convex lens by plotting graphs between  $u$  and  $v$  or between  $1/u$  and  $1/v$ .

3- To determine angle of minimum deviation for a given prism by plotting a graph between angle of incidence and angle of deviation.

4- To draw the I-V characteristic curve for a p-n junction diode in forward and reverse bias.



# CLASS XII

## SUBJECT: PHYSICS

### Activities

- 1- To identify a diode, an LED, a resistor and a capacitor from a mixed collection of such items.
- 2- To observe refraction and lateral deviation of a beam of light incident obliquely on a glass slab.
- 3- To study the nature and size of the image formed by a (i) convex lens, or (ii) concave mirror, on a screen by using a candle and a screen (for different distances of the candle from the lens/mirror).

### ASSIGNMENT

Prepare a **WORKING MODEL** on static charges or moving charges /based on electric current.