Subject- English Core
Parijat Jha Mobile No : 9973394677

Book-Flamingo-The Last lesson-A P atrioticstory, importance of mother tongue for a Nation, France.

Short Answer in 30-40 words

1. Why was Franz late for school that day?
2. Why was M Hamelin his special costume?
3. Why was M Hamel sad?
4. What was at the bulletin board?
5. Why were people present in the last class?
6. What did M Hamel address in his last class?
7. What was different in the school?

Long answers in 125-150 words.

1. How did Fran regret for?
2. How did M Hamel blame for ignoring Franz?

Subject- Physics
Vijayant Sinha Mobile No : 7717789015

Q.1 Numerical Questions
1. Calculate the minimum size of a plane mirror fixed on the wall in which an observer at the centre of the room can see the full image of the wall behind him
2. How far from a lamp must a concave mirror of focal length 3m be placed in order to throw image on a screen 8m from the lamp.
3. An unlit burner is 90cm from a concave mirror of curvature 60cm. Where must a flame be put so that its image may be seen to come from the burner.
4. A convex mirror produces a magnification $1/_2$ when an object is placed at a distance of 60cm from it. Where should the object be placed so that the size of the image becomes $1/_3$ of the object.
5. An object is placed at 40cm from a concave mirror of focal length 15cm. If the object is displaced 20 cm towards it what would be the displacement of the image.
6. An object is placed 50cm from the surface of a glass sphere of 10cm radius along the diameter where will the final image be formed after refraction at both the surface [take $\mu=1.5$]
7. Two thin lenses of power +4D and -2D are in contact. What is the focal length of the combination.
8. Find the focal length of a plano-convex lens when the radius of curvature of the convex sureface is 60cm refractive index of the material is 1.5.
9. A plano-convex lens of refractive index 1.5 has a curved surface of radius 15cm. What is its focal length.
10. The radii of curvatures of a lens are 30cm and 31cm. If its focal length is 30.5cm, find the refractive index of the lens.

Q.2   Answer the following questions:-

Note → Help can be taken from Internet or reference book but answers should be in your own words.

1. What is an intrinsic semi-conductor? What is the cause of its electric conductivity?
2. What is an extrinsic semi-conductor? What is the cause of its electric conductivity?
3. With the help of circuit diagram, distinguish between forward and reverse biasing.
4. Explain the working of Zener diode.
5. Define radioactivity? Distinguish between alpha, beta and gamma radiation.
6. Fusion is more energetic than fission. Comment.
7. Define the activity of a given radioactive substance. Write its SI unit.
8. Write the conclusions obtained from Ruther force scattering experiment.
9. Explain doppler effect in light.
10. State Kirchhoff's Junction rule and loop rule.
11. State Coulomb's law and express coulomb's formula in vector form.
12. With the help of a well labelled diagram explain the working of A.C generator.
13. What is an alternating current? Why alternating current preferred over direct current.
14. Explain Quantization of charge.
15. Write a short note on Bohr's atom model.

Subject- Chemistry
C. B Jha Mobile No : 9430451504

1. Give an example of solution containing a solid solute in a solid solvent.
2. Is smoke a homogeneous solution? If not, then what is it ?
3. What do you mean by 10% aqueous solution of sodium carbonate?
4. Define mole fraction.
5. How does the Molarity of a solution change with temperature?
6. What type of intermolecular attractive interaction exists in the pair of methanol and acetone?
7. What do you understand by colligative properties?
8. State any two characteristics of ideal solutions?
9. What type of liquids form ideal solutions?
10. What are maximum boiling azeotropes? Give one example.
11. Define ebullioscopic constant.
12. What is an antifreeze?
13. What is reverse osmosic?
14. State hoe does osmotic pressure vary with temperature.
15. What are isotonic solutions?
16. Define Van't Hoff factor.
17. What is the Van't Hoff factor for a compound? Which undergo dimerisation in a organic solvent?
18. What would be the value of Van't Hoff factor for a dilute solute of K2SO4 in Water?
19. State Henry's Law.
20. What is the significance of Henry's constant.
21. Define Azeotropes.

Chapter : Reproduction in organisms

Q.1 The following questions consists of two statements, one labelled as Assertion (A) and the other labelled the reason (R). Examine these two statements carefully and select the most appropriate answer codes.

Answer codes:

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

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

(c) (A) is true and (R) is false

(d) Both (A) and (R) are false

   i) **Assertion (A)** : Asexual reproduction is common among unicellular plants and animals with simple organisation.
   Reason (R) : This mode of reproduction imparts greater variation among progenies

   ii) **Assertion (A) :** Offsprings of oviparous animals are at greater risk as compared to offsprings of viviparous animals .
   Reason (R) : Proper embryonic care and protection is lesser .

   iii) **Assertion (A) :** Syngamy is the union of gametes producing zygote during sexual reproduction.
   Reason (R) : Zygote is a vital link that ensures continuity of species .

Q.2 Match column I with column II and select the correct option.

Column I	Column II
(A) Zoospores	(1) Rhizopus
(B) Conidia	(2) Sponge
(C) Buds	(3) Penicillium
(D) Gemmules	(4) Hydra
(E) Sporangiospores	(5) Charny domonas

Q.3 Multiple choice questions:

   (i) Which one of the following is concerned with asexual reproduction?
       (a) spores   (b) Gonads
       (c) Zygotes   (d) Gametes

   (ii) Vegetative propagation takes place through adventitious buds in:
       (a) Bryophyllum   (b) Chlamydomonas
       (b) Planaria   (d) All of these

   (iii) Parthenogenesis is a type of:
       (a) Budding   (b) regeneration
       (b) Sexual reproduction   (d) asexual reproduction

Q.4 Why do we refer to offspring formed by asexual method of reproduction as clones?

Q.5 Although potato tuber is an underground part, it is considered as a stem. Give two reasons.

Q.6 Cut-piece of a Bryophyllum leaf when put into wet soil produce new plants. How?

Q.7 Write the difference between staminate and pistillate flowers.

Q.8 Name an organism where cell division is itself a mode of reproduction.

Q.9 Name the phase all organisms have to pass through before they can reproduce sexually.

Q.10 How are cucurbita plants different from papaya plants with reference to the flowers they bear?

Q.11 Name the phenomenon and the cell responsible for the development of a new individual without fertilisation as seen in honey bees.

Q.12 How does Penicillium reproduce asexually.

Q.13 Name the vegetative propagules in the following:
   (a) Agave
   (b) Bryophyllum
Q.14 What do the following parts of a flower develop into after fertislisation?
   (a)Ovary_____   (b) Ovules_____
Q.15 What are the main purposes of reproduction.
Q.16 Coconut palm is monoecious while date palm is dioecious. Why are they called so ?
Q.17 Write two major adaptations in animals exhibiting external fertilisation.
Q.18 What is micropropagation? Why are the plants produced by micropropagation called soma clones?
Q.19 With the help of an example of each explain the following:
   (a) Aprmixis
   (b) Parthenocarpy
   (c) Polyembryony
Q.20 What is vegetative propagation? Give two suitable examples.
Q.21 Define:
         (a) Juvenile phase
         (b) Reproductive phase
         (c) Senescent phase
Q.22 Higher organisms have resorted to sexual reproduction in spite of its complexity. why?
Q.23 Differentiate between zoospore from zygote.
Q.24 Differentiate between gametogenesis from embryogenesis.
Q.25 Why are offspring of oviparous animals at a greater risk as compared to offspring of viviparous animals?

1. (i) If $A=[2 \quad 3 \quad 5]$, $B=\begin{bmatrix} 1 \\ 2 \\ 3 \end{bmatrix}$, $find\ AB$.

   (ii) If $A=\begin{bmatrix} 2 & 1 & 3 \\ 4 & 1 & 0 \end{bmatrix}$, $B=\begin{bmatrix} 1 & -1 \\ 0 & 2 \\ 5 & 0 \end{bmatrix}$,

   Find AB and BA.

   (iii)   Evaluate $\begin{bmatrix} 0 & 2 \\ 0 & 3 \end{bmatrix} \begin{bmatrix} 4 & 6 \\ 0 & 0 \end{bmatrix}$, $\begin{bmatrix} 1 & 3 \\ 2 & 1 \end{bmatrix} \begin{bmatrix} 4 \\ -1 \end{bmatrix}$

   (iv)   If $A=\begin{bmatrix} \cos\theta & \sin\theta \\ \sin\theta & \cos\theta \end{bmatrix}$, $B=\begin{bmatrix} \cos\theta & \sin\theta \\ \sin\theta & \cos\theta \end{bmatrix}$

         Show that AB=BA

   (v)   If $A\begin{bmatrix} 1 & 2 & 3 \\ 0 & 1 & 0 \\ 1 & 1 & 0 \end{bmatrix}$ and $B=\begin{bmatrix} -1 & 1 & 0 \\ 0 & -1 & 1 \\ 2 & 3 & 4 \end{bmatrix}$

Show that AB≠ BA

(vi) $\begin{bmatrix} 1 & 1 & 1 \end{bmatrix}$ $\begin{bmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{bmatrix}$ $\begin{bmatrix} 4 \\ 4 \\ 4 \end{bmatrix}$

(vii) $\begin{bmatrix} 1 & 3 & 5 \end{bmatrix}$ $\begin{bmatrix} 1 & 0 & 3 \\ 2 & 0 & 1 \\ 0 & 1 & 2 \end{bmatrix}$ $\begin{bmatrix} 1 \\ 4 \\ 6 \end{bmatrix}$

(viii) If $p(x) = \begin{bmatrix} \cos x & \sin x \\ -\sin x & \cos x \end{bmatrix}$, *then show*

that p(x).p(y)=p(x+y)=p(y).p(x)

(ix) If $f(x) = \begin{bmatrix} \cos x & -\sin x & 0 \\ \sin x & \cos x & 0 \\ 0 & 0 & 1 \end{bmatrix}$, show that

f(x).f(y)=f(x+y)

2. (i) Find the value of x, such that

$\begin{bmatrix} 1 & x & 1 \end{bmatrix}$ $\begin{bmatrix} 1 & 3 & 2 \\ 2 & 5 & 1 \\ 15 & 3 & 2 \end{bmatrix}$ $\begin{bmatrix} 1 \\ 2 \\ x \end{bmatrix} = 0$

(ii) If $f(x) = x^2-5x+6$, find $f(A)$ if

$A = \begin{bmatrix} 2 & 0 & 1 \\ 2 & 1 & 3 \\ 1 & -1 & 0 \end{bmatrix}$

(iii) If $A = \begin{bmatrix} 1 & 0 & 2 \\ 0 & 2 & 1 \\ 2 & 0 & 3 \end{bmatrix}$, prove that

$A^3-6A^2+7A+2I=0$, Where $I = \begin{bmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{bmatrix}$

(iv) If $A = \begin{bmatrix} 0 & -\tan^{\alpha}/2 \\ \tan\frac{\alpha}{2} & 0 \end{bmatrix}$ and I

is the identify matrix of order 2.

Show that $(I+A) = (I-A).\begin{bmatrix} \cos \alpha & -\sin \alpha \\ \sin \alpha & \cos \alpha \end{bmatrix}$

(v) If $A = \begin{bmatrix} 1 & 2 & 3 \\ -1 & 0 & 2 \\ 1 & -3 & -1 \end{bmatrix}, B = \begin{bmatrix} 4 & 5 & 6 \\ -1 & 0 & 1 \\ 2 & 1 & 2 \end{bmatrix} C = \begin{bmatrix} -1 & -2 & 1 \\ -1 & 2 & 3 \\ -1 & -2 & 2 \end{bmatrix}$,

$Verify\ that\ A(B+C) = AB + AC$

Students are instructed to complete the assignment-2 carefully and submit it till 02nd May 2020 on the Whatsapp no. of your respective subject teachers.
It is compulsory to attempt all questions. In case of any doubt, you can call the concerned subject teacher on the provided contact number. The marks obtained will be counted in your Internal Assessment.

For any problem related to school app or downloading of assignment please contact :- 9470283176