



THE JAIN INTERNATIONAL SCHOOL, KANPUR

Quality Education in a disciplined environment

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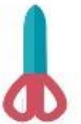
Summer



HOLIDAY



HOMework



CLASS:- XII S (2024-25)





The Jain International School, Kanpur

Class XII

SUBJECT	HOMEWORK ASSIGNED
ENGLISH	<p>1. Write a report on:</p> <p>(a) sports day celebration held in your school</p> <p>2. Write a job application with biodata for:</p> <p>(a) the post of accountant in a reputed firm. Attach your biodata.</p> <p>3. PORTFOLIO:</p> <p>PREPARE A PORTFOLIO WITH THE FOLLOWING –</p> <p>(Prepare a file with A4 size sheets)</p> <ul style="list-style-type: none">• Introduction• My strengths• I need to improve on...• My achievements• I have participated in...• The books I have read• The book I wish to read
MATHS	<p>Do the worksheet and plan for working model</p>
PHYSICS	<p>Project file allotted.[Minimum 20 pages, Printed, coloured diagram and spiral]</p>
CHEMISTRY	<p>Do the given Worksheet</p>

BIOLOGY	<ol style="list-style-type: none"> 1. Prepare a project file on the topic given including research work, images etc. Prepare related model too. 2. Do the given worksheet in your biology notebook.
P.ED	<p>Make a project in lab manual</p> <p>Practical 1: fitness test administration (SAI Khelo India test)</p> <p>Practical 2 procedure for asana benefits and contraindication for any tu asanas for each lifestyle disease</p> <p>Practical 3 anyone one IOA recognised sports games of choice level diagram field and equipment also mention rules and regulation skills (Team Games)</p> <p>Make a project on your choice games (Team games) draw a diagram of your sports field or court in chart paper</p>
CS	<ol style="list-style-type: none"> 1. Project on selected topic using python and My SQL connectivity with python 2. Complete your report file containing programs of all topics of python in softcopy form (Atleast 220 programmms)

The Jain International School, Kanpur

Class: XII Subject: Biology

HUMAN REPRODUCTION

1. Why does failure of testes to descend into scrotum produce sterility?
(C.B.S.E. 2006 Comptt.)
2. Sperms have a tail whereas eggs do not. Why so? (C.B.S.E. 2007)
3. Mention the function of trophoblast in human embryo. (C.B.S.E. 2011)
4. Name of embryonic stage that gets implanted in the uterine wall of a human female.
(C.B.S.E. 2011)
5. What stimulates pituitary to release the hormone responsible for parturition? Name the hormone. (C.B.S.E. 2011)
6. List the changes the primary oocyte undergoes in the tertiary follicular stage in the human ovary. (C.B.S.E. 2012)
7. Write the location and function of Sertoli cells in humans. (C.B.S.E. 2012)
8. When do the oogenesis and spermatogenesis initiate in human females and males respectively? (C.B.S.E. 2012)
9. Mention the difference between spermiogenesis and spermiation.
(C.B.S.E. 2012)
10. Where is acrosome present in humans? Write its functions. (C.B.S.E. 2012)
11. Explain the function of umbilical cord. (C.B.S.E. 2012)
12. How is the entry of only one sperm and not many ensured into an ovum during fertilization in humans? (C.B.S.E. 2012)
13. Identify the given figure and the part labeled 'A' (C.B.S.E. 2012)
14. Mention the location and function of Leydig cells in humans. (C.B.S.E. 2012)
15. Mention the function of mitochondria in sperm. (C.B.S.E. 2012)
16. What is monospermy? How is polyspermy prevented in humans.
(C.B.S.E. 2007)
17. What is gynaecomastia ? What is its cause during neonatal period and during puberty?
(C.B.S.E. 2007)
18. What is pregnancy hormone? Why is it so called? Name two sources of the hormone in a human female. (C.B.S.E. 2007)
19. Draw a labeled diagram of ovum and label its four parts. (C.B.S.E. 2007)
20. Why is the human placenta referred to as haemochorial type? Explain.
(C.B.S.E. 2008)

21. Draw a labeled diagram of a sectional view of human ovary showing various stages of follicles growing in it. (C.B.S.E. 2008)
22. Where are fimbriae present in a human female reproductive system? Give their function. (C.B.S.E. 2009)
23. Name the muscular and glandular layers of human uterus. Which one of these layers undergoes cyclic changes during menstrual cycle? Name the hormone essential for maintenance of this layer.(C.B.S.E. 2009)
24. Where are Leydig cells present ? What is their role in reproduction?

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25. Name the source of gonadotropins in human females. Explain the changes brought about in the ovary by these hormones during menstrual cycle. (C.B.S.E. 2009)
 26. Placenta acts as an endocrine tissue. Justify. (C.B.S.E. 2010)
 27. Mention the fate of corpus luteum and its effects on the uterus in the absence of fertilization of the ovum in the human female. (C.B.S.E. 2010)
 28. Spermatogenesis in human males is a hormone regulated process. Justify. (C.B.S.E. 2010)
 29. Draw a labeled diagram of the reproductive system in human female. (C.B.S.E. 2011)
 30. Name the hormones produced only during pregnancy in human female. Mention their source organ. (C.B.S.E. 2011)

31. (a) Where do the signals for parturition originate in humans?
 (b) Why is it important to feed the new born babies on colostrum
 (C.B.S.E. 2012)
32. (a) Oviducal fimbriae (b) Oxytocin
 (c) Middle piece in human sperm (d) Seminal vesicle
 (e) Acrosome of human sperm (C.B.S.E. 2012)
33. Give a schematic representation of of oogenesis in humans. Mention the number of chromosomes at each stage. Correlate the life phases of the individual with the stages of the process
 (C.B.S.E. 2008)
34. (a) Give a schematic representation of spermatogenesis in humans.
 (b) At which stage of life does gametogenesis begin in human male and femalerespectively?
 (c) Name the organs where gametogenesis gets completed in human male and female respectively. (C.B.S.E. 2008)
35. (a) Draw a labeled diagram of a sectional view of human seminiferous tubule.
 (b) Differentiate between gametogenesis in human males and females on the basis of (i) Time of initiation of the process. Products formed at the end of the process.(C.B.S.E. 2008)
36. Draw a diagrammatic sectional view of human ovary showing different stages of oogenesis alongwith corpus luteum. (C.B.S.E. 2009)
37. Where is morula formed in humans? Explain the process of its development from zygote.(C.B.S.E. 2009)
38. (a) Draw a schematic diagram of human sperm and label the cellular componentsgive the functions of any three parts.
 (b) Where are the sperm heads found embedded after spermatogenesis? (C.B.S.E. 2009)
39. (a) When and how does placenta develop in human female?
 (b) How is placenta connected to the embryo?
 (c) Placenta acts as an endocrine gland Explain (C B S E 2009)

SEXUAL REPRODUCTION IN FLOWERING PLANTS

- Q.1 Write briefly the role of pollination in the growth and development in an angiosperm. **(C.B.S.E 2007)**
- Q.2 Describe the structure of a typical/polygonum type embryo sac found in flowering plants. Why is it called monosporic? **(C.B.S.E 2007)**
- Q.3 Why is the process of fertilization in a flowering plant referred to as double fertilization? **(C.B.S.E 2007)**
- Q.4 What is the process of fertilization in flowering plant referred to as double fertilization? **(C.B.S.E 2007)**
- Q.5 The flower of Brinjal is referred to as chasmogamous while that of Bean is cleistogamous. How are they different from each other.
- Q.6 Coconut Palm is monoecious while Date Palm is dioecious. Why are they called so? **(C.B.S.E 2008)**
- Q.7 Banana is a parthenocarpic fruit whereas oranges show polyembryony. How are they different from each other with respect to seeds? **(C.B.S.E 2009)**
- Q.8 Name the cell from which the endosperm of Coconut develops. Give the characteristic features of endosperm of coconut. **(C.B.S.E 2009)**
- Q.9 Draw a vertical section of a Maize grain and label.
(i) pericarp (ii) scutellum (iii) coleoptile (iv) radicle **(C.B.S.E 2009)**
- Q.10 Fertilization is essential for production of seeds
(i) Give one example of an angiosperm that produces seed without fertilization. Name the process.
(ii) Explain two ways by which seeds develop without fertilization. **(C.B.S.E 2009)**
- Q.11 Explain any two devices by which autogamy is prevented in flowering plants. **(C.B.S.E 2009)**
- Q.12 Mention the reasons for difference in ploidy of zygote and primary endosperm nucleus in an angiosperm. **(C.B.S.E 2010)**
- Q.13 How does the floral pattern of Mediterranean orchid, Ophrys, guarantee cross pollination? **(C.B.S.E 2010)**
- Q.14 Draw a longitudinal section of a post pollinated pistil to show entry of pollen tube into mature embryo sac. Label filiform apparatus, chalazal end, hilum, antipodals, male gametes and secondary nucleus. **(C.B.S.E 2010)**
- Q.15 Where does triple fusion take place in a flowering plant. Why is it so called? Mention its significance. **(C.B.S.E 2010)**
- Q.16 If you squeeze a seed of orange, you might observe many embryos of different sizes. How is it possible? Explain **(C.B.S.E 2010)**
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- Q1)** The molar ionic conductivities of Ca^{2+} and Cl^- are 119.0 and $76.3 \text{ S cm}^2 \text{ mol}^{-1}$ respectively. The value of limiting molar conductivity of CaCl_2 will be:
 a) $195.3 \text{ S cm}^2 \text{ mol}^{-1}$ b) $43.3 \text{ S cm}^2 \text{ mol}^{-1}$ c) $314.3 \text{ S cm}^2 \text{ mol}^{-1}$ d) $271.6 \text{ S cm}^2 \text{ mol}^{-1}$
- Q2)** 18 g of a non-volatile solute is dissolved in 200 g of water freezes at 272.07 K . Calculate the molecular mass of solute. (K_f for water = $1.86 \text{ K kg mol}^{-1}$)
- Q3)** Calculate emf of the following cell at 25°C :
 $\text{Sn (s)} \mid \text{Sn}^{2+}(0.001\text{M}) \parallel \text{H}^+(0.01 \text{ M}) \mid \text{H}_2(1 \text{ bar}) \mid \text{Pt(s)}$
 $E^\circ(\text{Sn}^{2+} \mid \text{Sn}) = -0.14\text{V}$, $E^\circ(\text{H}^+ \mid \text{H}_2) = 0.00 \text{ V}$
- Q4)** In a galvanic cell, chemical energy of a redox reaction is converted into electrical energy, whereas in an electrolytic cell the redox reaction occurs on passing electricity. The simplest galvanic cell is in which Zn rod is placed in a solution of ZnSO_4 and Cu rod is placed in a solution of CuSO_4 . The two rods are connected by a metallic wire through a voltmeter. The two solutions are joined by a salt bridge. The difference between the two electrode potentials of the two electrodes is known as electromotive force. In the process of electrolysis, the decomposition of a substance takes place by passing an electric current. One mole of electric charge when passed through a cell will discharge half a mole of a divalent metal ion such as Cu^{2+} . This was first formulated by Faraday in the form of laws of electrolysis.
 Answer the following questions:
 a) What is the function of a salt bridge in a galvanic cell?
 b) When does galvanic cell behave like an electrolytic cell?
 c) Can copper sulphate solution be stored in a pot made of zinc? Explain with the help of the value of E° cell.
 $E^\circ(\text{Cu}^{2+} \mid \text{Cu}) = -0.34\text{V}$ $E^\circ(\text{Zn}^{2+} \mid \text{Zn}) = -0.76\text{V}$
 d) How much charge in terms of Faraday is required for the following:
 i) 1 mol of MnO_4^- to Mn^{2+}
 ii) 1 mol of H_2O to O_2
- Q5)** a) Define reverse osmosis.
 b) Why are aquatic animals more comfortable in cold water in comparison to warm water?
 c) A solution containing 2 g of glucose ($M=180 \text{ g mol}^{-1}$) in 100g of water is prepared at 303 K . If the vapour pressure of pure water at 303 K is 32.8 mm Hg , what would be the vapour pressure of the solution?
- Q6)** a) Predict whether Van't Hoff Factor will be less or greater than one, when ethanoic acid dissolved in benzene.
 b) Define ideal solution.
 c) Calculate mass of CaCl_2 (molar mass = 111 g mol^{-1}) to be dissolved in 500 g of water to lower its freezing point by 2K , assuming that CaCl_2 undergoes complete dissociation.
 $[K_f=1.86 \text{ K kg mol}^{-1}]$
- Q7)** Calculate the molar mass of a compound when 6.3 g of it is dissolved in 27 g of chloroform to form a solution that has a boiling point of 68.04°C and K_b for chloroform is $3.63 \text{ }^\circ\text{C kg mol}^{-1}$.
- Q8)** A solution containing 60 g of non-volatile solute in 250 g of water freezes at 270.67 K . Calculate the molar mass of the solute. $K_f = 1.86 \text{ kK kg mol}^{-1}$
- Q9)** The emf of the cell $\text{Zn} \mid \text{Zn}^{2+}(0.1\text{M}) \parallel \text{Cd}^{2+}(M_1) \mid \text{Cd}$ has been found to be 0.3305 V at 298K . Calculate the value of M_1 . Given $E^\circ(\text{Zn}^{2+} \mid \text{Zn}) = -0.76\text{V}$, $E^\circ(\text{Cd}^{2+} \mid \text{Cd}) = -0.40\text{V}$
- Q10)** A 1.2% solution of NaCl is isotonic with 7.2% solution of glucose. Calculate the van't Hoff factor of NaCl .



SHRINATHJI
Group of Institutions

The Jain International School

Class- XII

Subject- Mathematics (Holiday Assignment)

2024-2025

- 1) Find the value of $\cos(\tan^{-1}\frac{3}{4})$.
- 2) Find the principal value of $\cos(\cos^{-1}(-\frac{\sqrt{3}}{2}) + \frac{\pi}{6})$.
- 3) Find the principal value of $\tan^{-1}(\tan\frac{5\pi}{6}) + \cos^{-1}(\cos\frac{13\pi}{6})$.
- 4) Solve for x: $\cos(\sin^{-1}x) = \frac{1}{2}$.
- 5) Prove that $\cos^{-1}x = 2\sin^{-1}\sqrt{\frac{1-x}{2}} = 2\cos^{-1}\sqrt{\frac{1+x}{2}}$.
- 6) Write the following function in simplest form: $\tan^{-1}\left\{\frac{\sqrt{1+x^2}+\sqrt{1-x^2}}{\sqrt{1+x^2}-\sqrt{1-x^2}}\right\}$, $-1 < x < 1$.
- 7) prove that: $\sin^{-1}\frac{8}{17} + \sin^{-1}\frac{3}{5} = \tan^{-1}\frac{77}{36}$.
- 8) If $\tan^{-1}x + \tan^{-1}y + \tan^{-1}z = \pi$, prove that $x + y + z = xyz$
- 9) Solve for x : $\tan^{-1}\left(\frac{x-5}{x-6}\right) + \tan^{-1}\left(\frac{x+5}{x+6}\right) = \frac{\pi}{4}$
- 10) Solve the equation: $\tan^{-1}(\sqrt{x^2+x}) + \sin^{-1}(\sqrt{x^2+x+1}) = \frac{\pi}{2}$.
- 11) Prove that: $\sin^{-1}\frac{12}{13} + \cos^{-1}\frac{4}{5} + \tan^{-1}\frac{63}{16} = \pi$.
- 12) Find the matrix A so that $A \begin{bmatrix} 1 & 2 & 3 \\ 4 & 5 & 6 \end{bmatrix} = \begin{bmatrix} -7 & -8 & -9 \\ 2 & 4 & 6 \end{bmatrix}$.
- 13) Find the inverse of the following matrix, if exists, by using elementary operations:

$$\begin{bmatrix} 2 & -3 & 3 \\ 2 & 2 & 3 \\ 3 & -2 & 2 \end{bmatrix}$$
- 14) For the product of the matrices $A = \begin{bmatrix} 2 & 3 & 4 \\ 5 & 4 & -6 \\ 3 & -2 & -2 \end{bmatrix}$ and $B = \begin{bmatrix} 20 & 2 & 34 \\ 8 & 16 & -32 \\ 22 & -13 & 7 \end{bmatrix}$. Hence, solve the system of equation: $\frac{2}{x} + \frac{3}{y} + \frac{4}{z} = -3$, $\frac{5}{x} + \frac{4}{y} + \frac{6}{z} = 4$, $\frac{3}{x} - \frac{2}{y} - \frac{2}{z} = 6$.
- 15) Is the function f defined by $f(x) = x - |x|$ continuous at $x = 0$?
- 16) If $f(x) = \begin{cases} \frac{\cos^2x - \sin^2x - 1}{\sqrt{x^2+1}-1}, & x \neq 0 \\ k, & x = 0 \end{cases}$ is continuous at $x=0$, find the value of k.
- 17) Find the left hand and right hand derivatives of $f(x) = \begin{cases} x-3, & x < 2 \\ 2x-5, & x \geq 2 \end{cases}$ at $x = 2$. Hence, show that f is not derivable at $x = 2$.
- 18) If the function f defined by

$$f(x) = \begin{cases} \frac{1-\cos 4x}{x^2}, & x < 0 \\ a, & x = 0 \\ \frac{\sqrt{x}}{\sqrt{16+\sqrt{x}}-4}, & x > 0 \end{cases}$$
 is continuous at $x = 0$, find the value of a.
- 19) If the function by $f(x) = \begin{cases} -2 \sin x, & -\pi \leq x \leq -\frac{\pi}{2} \\ a \sin x + b, & -\frac{\pi}{2} < x < \frac{\pi}{2} \\ \cos x, & \frac{\pi}{2} \leq x \leq \pi \end{cases}$ is continuous in $[-\pi, \pi]$, then find the value of 'a' and 'b'.
- 20) Using the properties of determinants, prove that

$$\begin{vmatrix} x & y & x+y \\ y & x+y & y \\ x+y & x & y \end{vmatrix} = -2(x^3 + y^3).$$