



DSK DAY PUBLIC SCHOOL PURULLA (W.B.)
HOLIDAY HOME WORK
SUMMER HOLIDAYS-2021



CLASS XII SCIENCE

INSTRUCTIONS FOR COMPILATION OF HOLIDAY HOMEWORK

- All homework is to be done on A4 size sheets and compiled in a hard bound file / folder.
- Design an attractive cover for your file / folder.
- You may use different colour A4 size sheets for different subjects. Have a labelled cover page for each subject. All sheets of a subject should be put together / tied/ stapled together.
- Attach all the worksheets along with the homework sheets.
- The written part should be neatly presented in your own handwriting.
- Remember a well presented “Holiday Home Work” fetches you appreciation of the teachers and classmates.
- You may be asked for the hardcopies of holiday home work whenever school reopens.

LAST DATE OF SUBMISSION OF HOLIDAY HOMEWORK (ONLINE) IN GOOGLE CLASSROOM : 16/06/2021

SUBJECT:- ENGLISH.

LITERATURE SECTION

Answer the following questions.

1. Elucidate the character sketch of M. Hamel.
2. "It was the most beautiful language in the world"... explain the extract.
3. Mention the hazards of working in the glass bangles industry.
4. Is Saheb happy working at the tea – stall? Explain.
5. What was the childhood fear of Kamala Das?
6. Write down the central idea of the poem " An Elementary school".
7. "It would be an exotic moment
Without rush , without engines"... clarify the extract.

WRITING SECTION

1. Prepare a short article on the topic of " Women Empowerment".
2. You are cultural secretary of your school. Your school celebrated its golden jubilee.write a report for your school magazine about the celebration.
3. Write a short speech to be delivered in the morning assembly on the topic of"Usefulness of Yoga".
4. Lack of job opportunities in rural areas is forcing people to migrate in cities. Write a letter to the editor of a national daily on how we can improve the living conditions in these slums. Suppose you are Rajat/ Ranjita , M 112, Gandhinagar, Gujarat.

SUB:MATHEMATICS

TOPIC:-MATRICES

Q.1 Write the order of the following matrices

(i) $\begin{bmatrix} 1 & -3 \\ -1 & 2 \end{bmatrix}$ (ii) $\begin{bmatrix} 3 & 0 & 5 \\ 5 & -1 & -2 \end{bmatrix}$ (iii) $\begin{bmatrix} x \\ y \\ z \end{bmatrix}$

Q.2 If A and B are the matrices of order (3×4) and (4×3) what is the order of the matrix AB ?

Q.3 Evaluate:-

(i) $\begin{bmatrix} 19 & -17 & -3 \\ 17 & -12 & -27 \end{bmatrix} + \begin{bmatrix} -9 & -5 & -3k \\ -17 & 12 & 13 \end{bmatrix}$

(ii) $\begin{bmatrix} \sin\theta & -\cos\theta \\ \cos\theta & -\sin\theta \end{bmatrix} + \begin{bmatrix} \sin\theta & \cos\theta \\ -\cos\theta & -\sin\theta \end{bmatrix}$

Q.4 Evaluate:-

(i) $\begin{bmatrix} \sin\theta & -\cos\theta \\ \cos\theta & -\sin\theta \end{bmatrix} \cdot \begin{bmatrix} \sin\theta & \cos\theta \\ -\cos\theta & -\sin\theta \end{bmatrix}$

$$(iii) \begin{bmatrix} -1 & 0 & 2 \\ 1 & -1 & 3 \end{bmatrix} \cdot \begin{bmatrix} 1 & -1 & 0 \\ -2 & 1 & 5 \\ 3 & 1 & 1 \end{bmatrix}$$

Q.5 Write the values of x,y,z and w if $\begin{bmatrix} 2x+y & z-w \\ 5 & -2 \end{bmatrix} = \begin{bmatrix} 7 & -5 \\ z+w & x-y \end{bmatrix}$

Q.6 What are the possible orders of the matrix having 18 elements?

Q.7 What are the possible orders of the matrix having 17 elements?

Q.8 Write a matrix A of order (3×4), where $A=[a_{ij}]$, $a_{ij} = \frac{i-2j}{2|7i-j|}$ represents the elements of the matrix.

TOPIC: RELATIONS AND FUNCTIONS

Q.9 If $f(x) = x^3 - 1$ and $g(x) = \sqrt[3]{x}$, find (i) $f \circ g(x)$ (ii) $g \circ f(x)$

(iii) $f \circ f(x)$ and (iv) $g \circ g(x)$

Q.10 Consider the binary operation * on the set {1,2,3,4,5} defined by $a*b = \text{maximum}(a,b)$, write the operation table of the operation *

Q.11 If $f: \mathbb{R} \rightarrow \mathbb{R}$ is defined by $f(x) = x^2 - 3x + 2$, find $f(f(x))$.

Q.12 Consider $f: \mathbb{R}_+ \rightarrow [-5, \infty)$ given by $f(x) = 9x^2 + 6x - 5$. Show that f is invertible with $f^{-1}(y) = \frac{\sqrt{y+6}-1}{3}$.

Q.13 If $f: \mathbb{R} \rightarrow \mathbb{R}$ is given by $f(x) = (3 - x^3)^{\frac{1}{3}}$, then find $f \circ f(x)$.

Q.14 Show that $f(x) = \frac{4x+3}{6x-4}$, $x \neq \frac{2}{3}$, show that $f \circ f(x) = x$. Is the function invertible? Find the inverse of f.

Q.15 Show that the relation R in the set $A = \{1,2,3,4,5\}$ given by $R = \{(a,b) : |a-b| \text{ is even}\}$, is an equivalence relation.

CHEMISTRY

A. Answer the following questions-

1. What is the significance of Henry's Law constant K_H ?
2. Why is the vapour pressure of an aqueous solution of glucose lower than that of water?
3. Why is the mass determined by measuring a colligative property in some solute abnormal?
4. Justify- Is van't Hoff 'i' factor negative?
5. An aqueous solution of 2% non-volatile solute exerts a pressure of 1.004 bar at the normal boiling point of the solvent. What is the molar mass of solute?
6. What are colligative properties?
7. What is the unit of ebullioscopic constant?
8. Is depression of freezing point of 0.01(M) solution of glucose in comparison to 0.01(M) $MgCl_2$ solution same or different?
9. Under what condition is $E_{\text{cell}} = 0$ or $\Delta G = 0$.
10. What is the relation between specific conductance and molar conductance?

11. Write the down reaction involve in Daniell cell.
 12. Why conductivity of CH₃COOH decreases on dilution?
 13. Write the Nernst equation and calculate emf of the following cell at 298K-
Mg(S)|Mg²⁺ (0.1M)|| Cu²⁺(0.01M)|Cu(S)
Given E_{0cell} =2.71 V [3]
 14. 18 g of glucose,C₆H₁₂O₆ is dissolved in 1kg of water in a saucepan. At what temperature will water boil at 1.03 bar? K_b for water is 0.52 k kg mol⁻¹.
 15. State Raoults law for a binary mixture.
 16. Write down the characteristics of ideal solution.
 17. Write down the anode and cathode reaction of a lead storage cell.
 18. Cu (s) + 2Ag⁺(aq) →Cu²⁺(aq) + 2Ag(s) Given-E⁰ Cu/Cu²⁺=-0.34v E⁰ Ag⁺/Ag =0.80v
Write down the cell representation and also calculate the equilibrium constant of the cell reaction.
 19. Calculate the potential of hydrogen electrode in contact with a solution whose P^H is 10.
 20. Write the cell reaction and calculate E₀ for the cell :
Zn/Zn²⁺ (1M) || Fe²⁺ (1M) / Fe³⁺ (1M) Given, E⁰ (Zn²⁺/Zn) =-0.76 v E⁰ (Fe³⁺/Fe²⁺) =0.77v
 21. How many atoms constitute one unit cell of a face centred cubic crystal ?
 22. Aluminum crystallizes in fcc structure. Atomic radius of the metal is 125 pm. What is the length of the side of the unit cell of the metal?
 23. Calculate the packing efficiency of bcc and fcc unit cell.
 24. Give reason-
 - a. Si on doping with P form n type of semiconductor
 - b. Ferromagnetic substances show better magnetism than antiferromagnetic substance.
- B. Make a ball stick model of FCC, BCC and simple cubic unit cell.**
- C. Write a poster on the topic of “Recent Development of Fuel Cell”.**
- D. Make a power point presentation on the topic of “ Li-ion batteries : basics, progress and challenges “.**

Subject - Physics (Electrostatics)

1. Vehicles carrying inflammable material usually have metallic ropes touching the ground during motion.

Why?

2. A water molecule of dipole moment $20 \times 10^{-6} \text{Cm}$ is enclosed by a closed surface. What is the net flux coming out of the surface?

3. Two insulated charged copper spheres A and B of identical size have charges q_A and q_B respectively. A third sphere C of the same size but charge q_C is brought in contact with the first and then in contact with the second and finally removed from both. What are the new charges on A and B?

4. An electric field at a point 2 cm away from a thin infinite charged sheet having surface charge density $5 \mu\text{C}/\text{m}^2$ is 20 N/C. What is the value of the electric field at 5 cm from sheet?

5. Draw an equipotential surface for an electric field that uniformly decreases in magnitude along the +x direction.

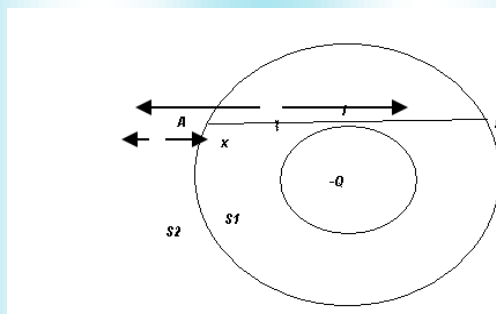
6. Two point charges $+4q$ and $-q$ are placed at a distance L apart. A third charge is so placed that all the three charges are in equilibrium. Find the location, magnitude and nature of third charge. Discuss also, whether the equilibrium of the system is stable, unstable or neutral.

7. Derive an expression for the potential energy of system of two point charges placed in an external electric field.

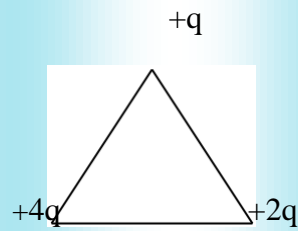
8. Plot a graph showing the variation of coulomb force (F) versus $(1/r^2)$, where r is the distance between the two charges of each pair of charges : $(-1\mu\text{C}, -3\mu\text{C})$ and $(4\mu\text{C}, -3\mu\text{C})$. Interpret the graphs obtained. (2)

9. Show that the electric field at any point on an equipotential surface is normal to the surface.

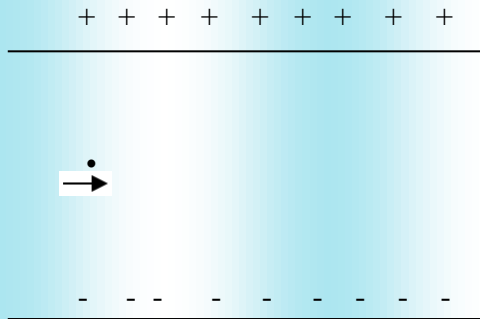
10. In the figure shown, calculate the total flux of the electrostatic field through the spheres S_1 and S_2 . The wire, AB, shown here, has a linear charge density, λ , given by $\lambda = kx$ where x is the distance measured along the wire, from the end A.



11. Calculate the work done to dissociate the system of three charges placed on the vertices of an equilateral triangle of side 10cm, as shown. Given $q = 1.6 \times 10^{-10} \text{C}$



12. A particle of mass m and charge $(-q)$ enters the region between the two charged plates initially moving along x -axis with speed v_x as shown in the figure. The length of the plate is L and a uniform electric field E is maintained between the plates. Derive an expression for the vertical deflection of the particle at the far edge of the plate.



13. Three concentric metallic spheres A, B and C of radius a , b and c ($a < b < c$) have surface charge densities σ , $-\sigma$ and σ respectively. (a) Find the potential of the three shells A, B and C. (b) If the shells A and C

are at the same potential, obtain the relation between a , b and c .

14. Derive an expression for the magnitude of the electric field at any point along the equatorial line due to a

dipole. Give the direction of electric field intensity.

15. Make a mind map/ppt on the important concept of electrostatics.

Subject: Computer Science

Question 1:

What are the two modes in Python ?

Question 2:

Write any two Standard Data Types in Python.

Question 3:

Is List a standard data type ?

Question 4:

Write the kind of Python's dictionary ?

Question 5:

What is the extension of Python language?

Question 6:

Which mode of Python invoking the interpreter without passing a script file as a parameter ?

Question 7:

Which mode of Python invoking the interpreter with a script parameter begins execution of the script and continues until the script is finished ?

Question 8:

In which mode of Python, the interpreter is no longer active ?

Question 9:

Do Python variables have to be explicitly declared to reserve memory space ?

Question 10:

Does Python allows you to assign a single value to several variables simultaneously ?

Question 11:

Give a example of immutable data type.

Question 12:

Which type of values can be store in Number data types.

Question 13:

Does Python allow for only double quotes ?

Question 14:

Write the name of most versatile Python's compound data types.

Question 15:

Which data type consists of a number of values separated by commas ?

Question 16:

What is IDLE?

Question 17:

Name some commands of Python.

Short Answer type Questions [2 mark each]

Question 1:

What is the difference between a keyword and an identifier ?

Answer:

Question 2:

What are literals in Python ? How many types of literals are allowed in Python ?

Question 3:

How many ways are there in Python to represent an integer literal ?

Question 4:

How many types of strings are supported in Python ?

Question 5:

What is "None" literal in Python ?

Question 6:

What factors guide the choice of identifiers in Programs ?

Question 7:

What will be the size of the following constants : "\a". "\a", "Manoj\s", "\", "XY\YZ"

Question 8:

What is the difference between a tuple and a list ?

Question 9:

Write various python modules convert the list to generate the output “one, two, three” ? a = ['one', 'two', 'three']

Question 10:

What would the following code yield ? word = 'abcdefghij'

Question 11:

Is there a tool to help find bugs or perform static analysis?

Question 12:

What is a tuple ?

Question 13:

What is a list?

Question 14:

Explain String data type.

Question 15:

What is a Number data types ?

Question 16:

Write the names of all Standard Data Types.

Question 17:

Write a list comprehension that builds a list of the even numbers from 1 to 10 (inclusive).

Question 18:

When do you use list vs. tuple vs. dictionary vs. set?

Question 19:

Explain the dictionary in Python.

Question 20:

What is PEP 8?

Question 21:

Explain how Python is interpreted.

Long Answer type Questions [4 mark each]

Question 1:

How do we share global variables across modules in Python?

Question 2:

What are the rules for local and global variables in Python?

Question 3:

What does 'immutable' mean ? Which data type in Python are immutable.

Question 4:

Does Python support data type conversion ?

Question 5:

How do you make an array in Python?

Question 6:

How do you make conversion between tuples and lists ?

Question 7:

What is the difference between list and tuple ? Give an example.

Question 8:

What is used to represent Strings in Python ?

Question 9:

Is there a tool help to find bugs or perform static analysis ?

Question 10:

Which of the following variable names are invalid ? Justify.

(a) try

(b) 123 Hello

(c) sum

(d) abc@123

Question 11:

Name four Python's basic data types. Why are they called so ?

Question 12:

Classify the Python data types.

PHYSICAL EDUCATION

Short answer type question.

Q1. Explain seeding method and special seeding on knock-out tournament.

Q2. List the steps to form committees for tournaments.

Q3. Discuss the objective of planning in sports.

Q4. What do you mean by food intolerance. Explain in details.

Q5. Explain micro minerals.

Q6. Enlist the forms of vitamin B and explain any one of them.

Long answer type question.

Q1. Define and classify fixtures. Draw a league fixture for 12 team.

Q2. Explain in details pitfalls of dieting.

Q3. What do you mean by specific sports programmes? Explain any two.

Q4. What is food myths? Explain various myths.

Q5. What do you mean by diabetes? Explain in details any two asana for preventing diabetes.

SUBJECT – BIOLOGY

1. Explain Mendel's test cross by figure.
2. A woman having blood group B married with a man having blood group AB which blood group may be expected in their progeny. Explain with diagrammatic sketch.
3. Explain Mutation with one example.
4. What are genetic diseases? How many chromosomes are present in Down syndrome ? What is its character.
5. Explain Mendel's law of segregation with the help of monohybrid cross .
6. Define gene mutation. Explain the types of gene mutation
7. Briefly describe the inheritance pattern of hemophilia in human .
8. State the law of independent assortment . Explain it by using Punnet square.
9. Explain a) Co-dominance b) Multiple allele c) Incomplete dominance
10. What is pedigree analysis? Suggest how much analysis can be useful .
11. What will be the phenotypes of F_1 generation when normal vision man(XY) marries colour blind woman ($X^{c}Y^c$) ?
12. What is polyploidy and aneuploidy ?
13. Write the cause of two symptoms of Klinefelters syndrome .
14. Differentiate between homozygous and heterozygous organisms.
15. What is Pleiotropy? Give an example .

SUBJECT – HINDI

- क. 'भक्तिन' पाठ पर आधारित प्रश्नोत्तर के उत्तर तैयार करें।
 - ख. 'बाजार दर्शन' पाठ पर आधारित प्रश्नों के उत्तर लिखें।
 - ग. 'आत्मपरिचय' और 'दिन जल्दी- जल्दी ढलता है' कविता पर आधारित प्रश्नों के उत्तर लिखिए।
 - घ. बोर्ड आधारित इन पाठ के प्रश्नोत्तर तैयार करें।
- ड. रचनात्मक लेख**
- आज की शिक्षा व्यवस्था और रोजगार
कोरोना और उसका सामना करते मानव
आज का समाज और बेरोजगारी
- च. कोई भी दो कार्यालय पत्र लिखें।
 - छ. पत्रकारिता और उसके विभिन्न आयाम के बारे में जानकारी प्राप्त करके लिखें।