

DHANBAD PUBLIC SCHOOL
HOLIDAY ASSIGNMENT (2018-2019)

STD:- XI SC

DATE :-

SUB:- PHYSICS

1. How is the fate of the society linked to the developments in physics?
2. Science is not opposed to humanities. Do you agree with this statement?
3. What is the relation between physics and technology?
4. Physics has a very limited scope and is only the pastime of a few blessed ones. Do you agree?
5. Which of the fundamental forces are of $(1/r^2)$ type?
6. Which of the four fundamental interactions have short range?
7. Distinguish between a law a theory and a hypothesis.
8. Give some examples of fundamental forces operating in daily life.
9. What do you mean by a conservative law? State some conservation laws applicable in classical physics.
10. What are the desirable characteristics of a standard unit?
11. What is Chandrasekhar limit?
12. What is a barn?
13. Express wavelength of yellow light (5893Å) in terms of nm?
14. What are the advantages of choosing the wavelength of light radiation as a standard length?
15. Define a coherent system of units. What are the seven base units in S.I.?
16. Define the SI unit of luminous intensity and temperature.
17. What are the merits of SI over other system of units?
18. What is gravitational mass? How is it measured?
19. Describe the parallax method to measure the distance of a planet from the earth and its s
20. Define the SI unit of current.
21. Define the SI unit of amount of substance?
22. Describe a method to measure the height of a tower which is inaccessible.
23. What is solid angle. Give the mathematical form of finding the solid angle for a surface.
24. Describe briefly a method to measure the inertial mass of a body.

SUB:- CHEMISTRY

- Q1. What are significant figures? Find the total number of significant figures in the following:
i) 0.0035 ii) 803 iii) 7007 iv) 135000 v) 1000.0
- Q2. Explain the following terms: Limiting reagent, molarity, molality, mole fraction.
- Q3. Calculate the molecular mass of the following: H_2SO_4 , $C_6H_{12}O_6$, Na_2SO_4
- Q4. What is the simplest formula of the compound which has the following percentage composition:
Carbon: 80%, Hydrogen:20%? If the molecular mass is 30, calculate its molecular formula.
- Q5. Calculate the mass percentage of different elements present in ethyl alcohol.
- Q6. How many atoms of oxygen are present in 300 g of $CaCO_3$?
- Q7. Calculate the mass of one atom of calcium and one molecule of SO_2 .
- Q8. Calculate the number of atoms of each type in 3.42 g of $C_{12}H_{22}O_{11}$.
- Q9. Calculate the Volume of the following at STP
i) 14 g of nitrogen ii) 6.023×10^{22} molecules of NH_3 iii) 0.1 mole of SO_2
- Q10. 80 g of H_2 are reacted with 80 g of O_2 to form water. Find out the mass of water obtained. Which is the limiting reagent?
- Q11. What mass of P_4O_{10} will be obtained from the reaction of 1.33 g of P_4 and 5.07 g of oxygen?
- Q12. Calculate the molarity of solution containing 5g of NaOH in 450 mL of solution.
- Q13. Calculate the molality of 2.5 g of ethanoic acid in 75 g of benzene.

Q14. Calculate the total number of electrons present in 1.6 g of CH_4 .

Q15. $\text{N}_2(\text{g}) + 3\text{H}_2(\text{g}) \rightarrow 2\text{NH}_3(\text{g})$

- Calculate the mass of NH_3 produced if 2×10^3 g of N_2 reacts with 1×10^3 g of H_2 .
- Will any of the two reactants remain unreacted?
- If yes, which one and what would be its mass?

SUB:- MATHEMATICS

- Let $U = \{1, 2, 3, 4, 5, 6, 7, 8, 9\}$, $A = \{1, 2, 3, 4\}$, $B = \{2, 4, 6, 8\}$ and $C = \{3, 4, 5, 6\}$. Find:
 - A'
 - $(A \cap C)'$
 - $(B - C)$
- Using properties of sets, prove that (i) $A \cap (A \cup B) = A$ (ii) $A \cup (A \cap B) = A$
- Using properties of sets A and B, show that i) $(A \cup B) \cap (A - B) = A$ ii) $A \cap (B - A) = (A \cap B) - A$
- For any sets A and B, show that $(A - B) \cup (A \cap B) = A$
- For any sets A, B and C prove that

$$A - (B \cap C) = (A - B) \cup (A - C)$$

$$A - (B \cup C) = (A - B) \cap (A - C)$$
- De Morgan's laws (prove that)
 - $(A \cup B)' = A' \cap B'$
 - $(A \cap B)' = A' \cup B'$
- In a survey it was found that 21 people liked product A, 26 liked product B and 29 liked product C. If 14 people liked products A and B, 12 people liked products C and A, 14 people liked products B and C, 8 liked all the three products. Find how many liked product C only.
- In a survey of 60 people, it was found that 25 people read newspaper H, 26 read newspaper T, 26 read newspaper I, 9 read both H and I, 11 read both H and T, 8 read both T and I, 3 read all three newspapers.

Find :-

 - the number of people who read at least one of the newspapers.
 - the number of people who read exactly one newspaper.
- A college awarded 38 medals in football, 15 in basketball and 20 in cricket. If these medals went to a total of 58 men and only three men got medals in all the three sports, how many received medals in exactly two of the three sports?
- In a committee, 50 people speak French, 20 speak Spanish and 10 speak both Spanish and French. How many speak at least one of these two languages?
- If $P(A) = P(B)$, show that $A = B$
- If $A \cup B = A \cap B$, prove that $A = B$
- If X and Y are two sets such that X has 40 elements, $X \cup Y$ has 60 elements and $X \cap Y$ has 10 elements. How many elements does Y have?
- Prove that $A \cap (B \cup C) = (A \cap B) \cup (A \cap C)$.
- Using Venn Diagram verify that $A \cup (B - A) = A \cup B$
- Using Venn Diagram represent $(B - C) \cup (C - B)$
- Write the following in Roaster Form $A = \{x : x \in \mathbb{R} \text{ and } x^2 - 5x + 6 = 0\}$
- Find sets A, B and C such that $A \cap B$, $B \cap C$ and $A \cap C$ are non empty sets and $A \cap B \cap C = \emptyset$
- Let A, B & C be three sets such that $A \cup B = C$ and $A \cap B = \emptyset$, then prove that $A = C - B$
- If A, B & C are any three sets, then prove that $A \cup (B \cap C) = (A \cup B) \cap (A \cup C)$
- For any two sets A & B, prove that $P(A \cap B) = P(A) \cap P(B)$
- If A, B and C be the sets such that $A \cup B = A \cup C$ and $A \cap B = A \cap C$. Show that $B = C$.
- List all the subsets of $\{-1, 0, 1\}$
- If $A = \{3, 4\}$, then find $P(A)$
- Write the set $\{\frac{1}{2}, \frac{2}{3}, \frac{3}{4}, \frac{4}{5}, \frac{5}{6}, \frac{6}{7}\}$ in set builder form.

SUB:- BIOLOGY

- Q.1 Define:-Growth, metabolism, biodiversity, nomenclature, classification, species.
Q.2 Expand-ICBN.
Q.3 Why are living organisms classified?
Q.4 Brinjal and potato belong to the same genus,Solanum,but to two different species. What defines them as separate species?
Q.5 What is meant by taxonomic hierarchy?
Q.6 How is plant growth different from animal growth?
Q.7 Amoeba multiplies by mitotic cell division.Is this phenomenon growth or reproduction?Explain.
Q.8 Museums and Zoological parks are both taxonomical aids;yet they differ from each other.How?
Q.9 How is a key helpful in identification and classification of an organism?
Q.10 Describe binomial nomenclature with an example.
Q.11 Explain the guidelines/principles for nomenclature.
Q.12 Illustrate taxonomic hierarchy with suitable example of a plant and an animal.
Q.13 What is the nature of cell wall in diatoms?
Q.14 What is diatomaceous earth?Mention any two economic uses of it.
Q.15 What do the terms "red tide " and "algal bloom " signify?
Q.16 What are the characteristic features of euglenoids?
Q.17 Describe the three groups of archaebacteria.
Q.18 Highlight the criteria considered for five kingdom system of classification.

ENGLISH

1. Read and write the book review of a novel.
Suggested reading- Pride and Prejudice, David Copperfield, Animal Farm etc.
2. Write any one of the following for AVALOKAN, the School Magazine.
Article, travelogue,poem, biographical and autobiographical sketches etc.

HINDI

प्र0 01 निम्नलिखित प्रश्नों के संक्षिप्त उत्तर लिखें—

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| (क) हिन्दी की सर्वश्रेष्ठ साइट कौन सी है? | (ख) प्रिंट माध्यम से आप क्या समझते हैं? |
| (ग) समाचार किसे कहते हैं? | (घ) छह ककारों से क्या तात्पर्य है? |
| (ङ) संचार किसे कहते हैं? | (च) समूह संचार किसे कहते हैं? |
| (छ) पत्रकारिता किसे कहते हैं? | (ज) समाचार—पत्र की आवाज़ किसे कहते हैं? |
| (झ) संचार शब्द की उत्पत्ति किस धातु से हुई है? | (ञ) फीडबैक किसे कहते हैं? |

प्र0 02 निबंध लिखें—

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| (I) इंटरनेट और युवापीढ़ी | (II) व्यायाम और स्वास्थ्य |
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प्र0 03 आपके कुछ साथी विद्यालय में छोटी कक्षाओं के विद्यार्थियों को बहुत सताते हैं। इस समस्या के बारे में प्रधानाचार्या को पत्र लिखिए।

प्र0 04 निम्नलिखित गद्यांश पर आधारित प्रश्नों के उत्तर दें—

मुंशी जी को — — — — होशियार रहना चाहिए।

- (क) अदालत में मुंशी जी को न्याय अपनी ओर से खिचा हुआ कैसे दिखाई दिया?
- (ख) डिप्टी मजिस्ट्रेट ने क्या तर्क देकर अलोपीदीन को दोषमुक्त कर दिया?
- (ग) अलोपीदीन को दोषमुक्त करना किस बात को स्पष्ट करता है?

प्र0 05 निम्नलिखित पद्यांश पर आधारित प्रश्नों के उत्तर दें—

- (क) ईश्वर एक होने के समर्थन में कबीर ने क्या तर्क दिए हैं?
- (ख) मानव-शरीर का निर्माण किन पंच तत्वों से हुआ है?

प्र0 06 निम्नलिखित प्रश्नों के संक्षिप्त उत्तर दें—

- (क) 'नमक का दारोगा' कहानी का कौन सा पात्र आपको सर्वाधिक प्रभावित करता है? क्यों?
- (ख) कबीर ने ऐसा क्यों कहा है कि संसार बौरा गया है?
