

SUMMER VACATION TASK

CLASS XI

SUBJECT-BIOLOGY

Multiple Choice Questions

- All eukaryotic unicellular organisms belong to
(a) Monera (b) Protista (c) Fungi (d) Bacteria
- Organisms living in salty areas are called as
(a) Methanogens (b) Halophiles
(c) Heliophytes (d) Thermoacidophiles
- Naked cytoplasm, multinucleated and saprophytic are the characteristics of
(a) Monerans (b) Protists (c) Fungi (d) Slime moulds
- An association between roots of higher plants and fungi is called.
(a) Lichen (b) Fern (c) Mycorrhiza (d) BGA
- A dikaryon is formed when
(a) Meiosis is arrested
(b) The two haploid cells do not fuse immediately
(c) Cytoplasm does not fuse
(d) None of the above
- Contagium vivum fluidum was proposed by
(a) D. J. Ivanowsky (b) M. W. Beijerinck
(c) Stanley (d) Robert Hooke
- Association between mycobiont and phycobiont are found in
(a) Mycorrhiza (b) Root (c) Lichens (d) BGA
- With respect to the fungal sexual cycle, choose the correct sequence of events.
(a) Karyogamy, plasmogamy and meiosis
(b) Meiosis, plasmogamy and karyogamy
(c) Plasmogamy, karyogamy and meiosis
(d) Meiosis, karyogamy and plasmogamy

1 Marks Questions

1. Nostoc and Anabaena have specialised cells called heterocyst's. What is the function of these cells.
2. Which group comprises of single celled eukaryotes only?
3. Which organisms are the chief producers in oceans ?
4. Name the fungus which causes disease in wheat (i)rust (ii) Smut.
5. Which Ascomycetes has been used extensively in biochemical and genetic work. Ans: Neurospora.
6. Who introduced the five kingdom classification of organisms?
6. To which kingdom the multicellular decomposers belong?
7. Expand PPLO.
8. Name the five kingdoms in which the organisms are grouped together?
9. In which class of fungi sexual reproduction does not occur?
10. Who is known as "Father of classification"?
11. Name the fungus from which LSD drug is obtained?
12. It is advised to grow one pulse crop in between two main crops in the same field why?

2 Marks Questions

1. Find out what do the terms "algal bloom"& "red tides" signify?
2. Why are some fungi grouped under "fungi imperfecti"?
3. Give scientific name of species of fungus:-
 - (a) Produces a plant disease.
 - (b) Is edible
 - (c) A source of antibiotic
 - (d) Used in manufacture of ethanol.
4. State an economically important use of
 - (i) Heterotrophic bacteria. (ii) Archaeobacteria.

5 Marks Questions

1. Explain the various methods of asexual & sexual reproduction in fungi?
2. Write the diagnostic characters of kingdom monera.
3. Compare the kingdoms under five kingdom classification in terms of cell type cellorganelles Nucleus, motility, cellularity.
4. Give a comparative account of classes of kingdom fungi on the basis of mode of nutrition & mode of reproduction.

Very Short Answer Type Questions

1. What is the principle underlying the use of cyanobacteria in agricultural fields for crop improvement?
2. Suppose you accidentally find an old preserved permanent slide without a label. In your effort to identify it, you place the slide under microscope and observe the following features:
 - a. Unicellular ‘
 - b. Well defined nucleus
 - c. Biflagellate—one flagellum lying longitudinally and the other transversely.What would you identify it as? Can you name the kingdom it belongs to?
3. How is the five-kingdom classification advantageous over the two kingdom classification?
4. Polluted water bodies have usually very high abundance of plants like Nostoc and Oscillitoria. Give reasons
5. The common name of pea is simpler than its botanical (scientific) name Pisum sativum. Why then is the simpler common name not used instead of the complex scientific/botanical name in biology?

SAINIK SCHOOL BHUBANESWAR

HOLIDAY HOME WORK

CLASS- XI

SUBJECT- CHEMISTRY

Answer the following questions.

1. Define the following terms: Molarity, molality, normality, mole fraction, limiting reagent, atomic mass, molecular mass, mole, formula mass.
2. State and explain: Law of Multiple proportions, Gay Lussac's law of gaseous volumes, Avogadro law, Law of reciprocal proportions.
3. Discuss the postulates and drawbacks of Dalton's Atomic Theory.
4. State the number of significant figures in each of the following numbers: 2.653×10^4 , 0.00368, 653, 0.368, 0.0300
5. Express the following numbers to four significant figures: 5.607892, 32.392800, 1.78986×10^3 , 0.007837
6. One million silver atoms weigh 1.79×10^{-16} g. Calculate the atomic mass of silver.
7. What would be the mass of 5.0 mole of ammonia. Calculate the number of ammonia molecules and nitrogen and hydrogen atoms in it.
8. Butyric acid contains C, H, O. A 4.24 mg sample of butyric acid is completely burnt. It gives 8.45 mg of CO_2 and 3.46 mg of water. What is the mass % of each element in butyric acid? If the elemental composition of butyric acid is found to be 54.2% C, 9.2% H, 36.6% O, determine its empirical formula. The molecular mass of butyric acid was determined to be 88 u. What is the molecular formula?
9. 3.00 g of H_2 react with 29.00 g of O_2 to yield H_2O .
 - (a) Which is the limiting reactant?
 - (b) Calculate the maximum amount of water that can be formed.
 - (c) Calculate the amount of one of the reactants which remains unreacted.
10. What mass of copper oxide will be obtained by heating 12.35 g of copper carbonate?
11. A small piece of commercial zinc weighing 10 g is made to react with excess of dilute sulphuric acid. The total volume of hydrogen gas liberated was found to be 3.1 litre at NTP. Determine the % purity of the zinc sample.
12. What volume of 10 M HCl and 3 M HCl should be mixed to obtain 1 L of 6 M HCl solution?
13. Why does the molality of a solution remain unchanged with temperature?
14. Calculate the total no of electrons present in 1.6 g of methane.
15. How are 0.50 mol Na_2CO_3 and 0.50 M Na_2CO_3 different?

16. Calculate the molality of a solution of ethanol in water in which the molefraction of ethanol is 0.040.
17. Calculate the no of atoms in each of the following: 52 moles of Ar, 52 u of He, 52 g of He.
18. Compare the characteristics of electrons, protons, neutrons with respect to their mass and charge.
19. Compare charges and masses of α , β , γ radiations.
20. What conclusions did Rutherford reach from the scattering experiment of α - particles by thin metallic sheet?

SAINIK SCHOOL BHUBANESWAR

SUMMER VACATION TASK-2019-20

SUB-PHYSICS

CLASS-XI

1. What is the difference between accuracy and precision of measurement?
2. Find the dimension of y in the expression $F = 6fyrv$, where 'F' is the force, 'r' is the radius and 'v' is velocity of an object, $6f = \text{constant}$.
3. Write any four fundamental units of measurements.
4. The force (F) on an object depends on the mass (m) of the body, velocity (v) of the body and radius (r) of circular path in which the body is moving. With the help of dimension analysis derive an empirical formula for the force.
5. The frequency of simple pendulum is depends on the acceleration due to gravity (g) and length (l) of the pendulum. Obtain an empirical formula with the help of dimensional analysis.

6. Check the dimensional consistency of the expression centripetal force, $F = \frac{mv^2}{r}$.

7. The distance 'x' covered by a body as a function of time 't' is given by the equation $x = at + bt^2$. Where 'x' is in meter and 't' in seconds. What is the unit of 'b'?

8. A physical quantity Q is given by $Q = \frac{A^2 \cdot B^{\frac{3}{2}}}{C^4 \cdot D^{\frac{1}{2}}}$. Their percentage error in A, B, C, and D are 1%, 2%, 4% and 2% respectively. Find the percentage error in Q.

9. Find the dimension of a and b in the expression $P = \frac{bx - 2t}{2a}$ where p is pressure, x is distance and t is time.

10. Find the percentage of error in volume of a sphere of radius $r = 10 \pm 0.02$ cm. Also find the volume of the given sphere.

11. What is relative error? Find % of error in X where $X = a^2b/\sqrt{c.d}$ if %of error in a,b,c,d are 1%,2%,3%and 4% respectively.

12. Check whether the following formulae are dimensionally correct or not?

a) $x = x_0 + v_0t + (1/2)at$ b) $1/2mv^2 = mgh$ c) $s = ut + (1/2)at^2$ d) $v^2 - u^2 = 2as$

13. Establish a relation among the physical quantities using dimensional analysis such that force depends on mass, velocity of an object moving in a circular path of radius r .

14. Check whether the formula $V^2 = U^2 + 2FS$ is dimensionally correct or not?

15. What is relative error? Find % of error in X where $X = ab^2/c \cdot d$ if % of error in a, b, c, d are 1%, 2%, 3% and 4% respectively.

16. Establish a relation among the physical quantities using dimensional analysis such that time period of a simple pendulum depends on effective length of pendulum and acceleration due to gravity.

17) Using dimensional formula convert:

a) One Newton into dynes b) one Joule into ergs

18. Check whether the following formulae are dimensionally correct or not?

a) $W = 1/2 mv^2 - 1/2 mu^2$ b) $W = 1/2 MV^2$ c) $T = FXR$ d) $L = MVR$ e) $I = MR^2$

19. Find the dimension of $\frac{a}{b}$ in the equation $P = \frac{a-t^2}{bx}$ where P is pressure, x is distance and t is time.

20. Find the area of a triangle if its two adjacent sides are $A = 2i + 3j$ and $B = i - j + 2k$ where i, j, k are unit vectors.

21. A physical quantity is given as $p = \frac{2\sqrt{ab}}{c^3}$ if the percentage of error a, b, c are 2%, 1% and 4% respectively. Calculate the percentage of error in p .

22. Write advantages and drawbacks of dimensions

23. In an experiment the measured quantities are a, b, c and then x is calculated by using the relation $x = ab^2/c^3$. If the percentage errors in measurements of a, b and c are $\pm 1\%$, $\pm 2\%$ and $\pm 1.5\%$ respectively, then calculate the maximum percentage errors in value of x obtained.

24. What is percentage error in volume of a sphere, when error in measuring its radius is 2%?

25. The resistance R is the ratio of potential difference (V) and current (I) what is the

Percentage error in R if $v = (100 \pm 5)$ Volt and $I = (10 \pm 0.2)$ A ?

26. Check the correctness of the relation $v^2 - u^2 = 2as$.

27. The length and breadth of a Rectangle are (5.7 ± 0.1) cm and (3.4 ± 0.2) cm. Calculate the area of Rectangle with error limit?

28. Convert one Newton into dynes? one Joule into ergs ?

29. A Physical quantity x is related to four observable a, b, c, d as follows. Here $x = a^2 b^{1/2} / c d^{1/2}$. If

Percentage error in a, b, c, d are 2%, 1%, 3%, 4%. Then what is the percentage error in x ?

30. We measure the period of oscillations of a simple pendulum in successive measurements,

the reading turn out to be 2.63s, 2.56s, 2.42s, 2.71s, 2.80s. Calculate absolute error,

relative error, resolution is 0.01

SAINIK SCHOOL BHUBANESHWAR

CLASS XI - Mathematics

HOLIDAY HOMEWORK

1. Determine $A \times B$ where $A = \{a, b, c, d\}$ and $B = \{1, 2, 3\}$.
2. Determine the symmetric difference $A \Delta B$ where $A = \{a, b, c, d\}$ and $B = \{c, d, e\}$.
3. What is the domain and range of the relation R where $R = \{(a, p), (a, r), (b, q)\}$.
4. Determine the inverse relation R^{-1} where $R = \{(a, 2), (a, 5), (b, 3), (b, 4), (c, 1)\}$.
5. If X and Y are subsets of the universal set U , then show that
(i) $Y \times Y$ (ii) $X \times Y \times X$ (iii) $X \times Y \times X \times Y = X$
6. Find the power set of
(i) $\{1, 2, 3, \{1\}\}$ (ii) $\{\}$ (iii) $\{\{\}\}$ (iv) $\{1, \{1, 2\}, 3\}$ (v) $\{1, \{\}\}$.
7. Draw the Venn diagrams to illustrate the following relationship among sets E , M and U , where E is the set of students studying English in a school, M is the set of students studying Mathematics in the same school, U is the set of all students in that school.
(i) All the students who study Mathematics study English, but some students who study English do not study Mathematics.
(ii) There is no student who studies both Mathematics and English.
(iii) Some of the students study Mathematics but do not study English, some study English but do not study Mathematics, and some study both.
(iv) Not all students study Mathematics, but every student studying English studies Mathematics.
8. For all sets A , B and C Is $(A \cap B) \cap C = A \cap (B \cap C)$? Justify your statement.
9. For all sets A , B and C is $(A - B) \cap (C - B) = (A \cap C) - B$? Justify your answer.

10. Let P be the set of prime numbers and let $S = \{t \mid t - 1 \text{ is a prime}\}$. Prove that $S \subseteq P$.
11. From 50 students taking examinations in Mathematics, Physics and Chemistry, each of the student has passed in at least one of the subject, 37 passed Mathematics, 24 Physics and 43 Chemistry. At most 19 passed Mathematics and Physics, at most 29 Mathematics and Chemistry and at most 20 Physics and Chemistry. What is the largest possible number that could have passed all three examination?
12. Two finite sets have m and n elements respectively. The total number of subsets of first set is 56 more than the total number of subsets of the second set. Find the values of m and n .
13. If A and B are two finite sets, then $n(A) + n(B)$ is equal to ? . Write in terms of union and intersection.
14. Given $L = \{1, 2, 3, 4\}$, $M = \{3, 4, 5, 6\}$ and $N = \{1, 3, 5\}$. Verify that $L - (M \cap N) = (L - M) \cup (L - N)$.
15. If $Y = \{1, 2, 3, \dots, 10\}$, and a represents any element of Y , write the following sets, containing all the elements satisfying the given conditions. (i) $a \in Y$ but $a \notin Y$ (ii) $a + 1 = 6$, $a \in Y$ (iii) a is less than 6 and $a \in Y$
16. A , B and C are subsets of Universal Set U . If $A = \{2, 4, 6, 8, 12, 20\}$, $B = \{3, 6, 9, 12, 15\}$, $C = \{5, 10, 15, 20\}$ and U is the set of all whole numbers, draw a Venn diagram showing the relation of U , A , B and C .
17. Out of 100 students; 15 passed in English, 12 passed in Mathematics, 8 in Science, 6 in English and Mathematics, 7 in Mathematics and Science; 4 in English and Science; 4 in all the three. Find how many passed
- in English and Mathematics but not in Science
 - in Mathematics and Science but not in English
 - in Mathematics only

(iv) in more than one subject only .

18. In a class of 60 students, 25 students play cricket and 20 students play tennis, and 10 students play both the games. Then, the number of students who play neither is _____.

19. In a class of 60 students, 25 students play cricket and 20 students play tennis, and 10 students play both the games. Find the number of students who play neither?

20. Prove that -1 is divisible by 3.

21. Prove that $2n + 1 < n^2$, for all natural numbers $n > 2$.

22. Prove by the Principle of Mathematical Induction that

$$1 \times 1! + 2 \times 2! + 3 \times 3! + \dots + n \times n! = (n + 1)! - 1 \text{ for all natural numbers } n.$$

23. Prove that $n(n + 5)$ is divisible by 6, for each natural number n .

24. For any natural number n , Prove that $n^2 + 3n + 2$ is divisible by 5.

25. $1 + 5 + 9 + \dots + (4n - 3) = n(2n - 1)$ for all natural numbers n . Prove it.

26. If $P(n) : 2n < n!$, $n \in \mathbf{N}$, then $P(n)$ is true for all $n > \underline{\hspace{2cm}}$. Also prove the statement by PMI .

27. Prove that $2 + 4 + 6 + \dots + 2n = n^2$ for all natural numbers n .

28. Practice all the questions from Misc. Exc. Of the Chap.1 "Sets" from NCERT .

29. Practice all the questions from EXC. `1.4 of NCERT.

30. Practice all the questions from EXC. 2.1 and 2.2 of NCERT .

Vacation Task (Summer): XI, English, 2019

The Portrait of a Lady

- Q1. Grandmother has been portrayed as a strong lady and an affectionate grandmother. Write a brief character sketch of the grandmother in the light of above statement?
- Q2. How was grandmother's life in the city different from her life in the village?
- Q3. Describe the three phases of the author's relationship with his grandmother before he went abroad for further studies?

A Photograph

- Q1. What does the word 'cardboard' denote in the poem? Why has this word been used?
- Q2. What has the camera captured?
- Q3. What has not changed over the years? Does this suggest something to you?
- Q4. The poet's mother laughed at the snapshot. What did this laugh indicate?
- Q5. What is the meaning of the line "Both wry with the laboured ease or loss"
- Q6. What does "this circumstance" refer to?
- Q7. The three stanzas depict three different phases. What are they?

We're Not Afraid to Die...if We Can All Be Together

- Q1. How does the story suggest that optimism helps to endure "the direst stress"?
- Q2. Describe the shifts in the narration of the events as indicated in the three sections of the text. Give a subtitle to each section.
- Q3. What difference did you notice between the reaction of the adults and the children when faced with danger?

SUMMER VACATION TASK

CLASS XI(COMPUTER)

- Q1. What is cyber safety?
 - Q2. Why is important to use Social network appropriately?
 - Q3. Define adware, malware, viruses, Trojans.
 - Q4. What do you mean by secure connections?
 - Q5. Define eavesdropping, phishing.
 - Q6. What do you mean by Identity verification?
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