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CIR.NO. : LFPS/2390/2024
DATED : 22.05.2024

SUMMER VACATION OF CLASS XI COMMENCES FROM 21.05.2024 TO 21.06.2024. THE SCHOOL WILL REOPEN ON 22.06.2024.

CLASS XI- HOLIDAYS HOMEWORK (2024-25)

SCIENCE STREAM

ENGLISH

Write each of the following questions in 100-120 words.

1.School-going children eat junk food which is extremely unhygienic and unhealthy. Write a speech to make students aware of associated health hazards.

2.Elders are assets, not liability. Write a debate on the same for the motion.

3. Discuss the values highlighted in the chapter The Portrait of a Lady.

4. Identify the poetic devices used in the poem A Photograph and discuss their meanings.

5. Human life is short-lived in contrast to nature. Comment on the statement in the light of the poem A Photograph.

6. Can the act of stealing be ever justified? Give your views in the context of reading of The Summer of the Beautiful White Horse.

PHYSICS

Do the following questions in Physics Register:

1. Define physical quantities. What is measurement? Define the term 'unit'. What are the requisites of a good unit? Write fundamental physical quantities and their SI units. What are supplementary units in SI system? State the principle of homogeneity of dimensions.
2. Give the dimensions of angular velocity.
3. Give the dimensional formula for the combination: v^2 x -½ a -½,where 'x' is in m, v is in m/s, and a is in m/s^2
4. Name another physical quantity having the same dimensions as energy.
5. Name a physical quantity which has a unit but dimensionless.
6. The planck's constant has the same dimension as a) angular velocity (b) energy (c) angular momentum (d) momentum
7. Given P=A+B/V where P is pressure and V is volume. What are the dimensions of A and B?
8. Which of the following is a derived quantity? (a) Mass (b) Volume (c) Length (d) Time
9. The instantaneous velocity of a particle is given by v = b/ (t+c). Where b and c are constants. What are the dimension formula of b and c?
10. The force required to keep a body in uniform circular motion depends on the mass of the body, radius of the circle and the linear speed of the body. Using method of dimensions derive a relation among these physical quantities.
11. Consider a simple pendulum, having a bob attached to a string, that oscillates under the action of the force of gravity. Suppose that the period of oscillation of the simple pendulum depends on its length (l), mass of the

bob (m), and acceleration due to gravity (g). Derive the expression for its time period using method of dimensions. T

12. he frequency 'f ' of vibration of a stretched string depends upon (i) its length, (ii) its mass per unit length 'm' and (iii) the Tension T in the string. Obtain dimensionally an expression for frequency 'f'.
13. A U-tube of uniform cross section contains mercury up to a height h in either limb. The mercury in one limb is depressed a little & then released. Obtain an expression for the time period of oscillations assuming that T depends on h, ρ & g.
14. The wavelength (λ) associated with moving electrons depends upon their mass (m), velocity (v) and Plank's constant (h). Prove that λ = k h/ mv where k is a constant.
15. An electric bulb has a power of 60W.Express it in CGS units.
16. A calorie is a unit of heat or energy and it equals about 4.2 J where 1J = 1 kg m^2 s^{-2}. Suppose we employ a system of units in which the unit of mass equals α kg, the unit of length equals β m, the unit of time is γ s. What will be the value of 4.2 J in above system.
17. If momentum (P), area (A) and time (T) are taken to be fundamental quantities, then what is the dimensional formula of energy?
18. What are the Significant figures? Write rules for determining the number of Significant figures in a measurement.
19. The numbers 64.385 and 64.375 on rounding off to 4 significant figures give (respectively): (a) 64.38 and 64.37 (b) 64.39 and 64.38 (c) 64.39 and 64.37 (d) 64.38 and 64.38
20. What is least count of an instrument? The vernier scale of a travelling microscope has 50 divisions, which coincide with 49 main scale divisions. If each main scale division is 0.5 mm, calculate the least count of the microscope.
21. A screw gauge has a pitch of 1.0 mm and 200 divisions on the circular scale. Calculate the least count of the screw gauge. When is zero error said to be positive?
22. Which of the following pairs of physical quantities does not have same dimensional formula?
    a. Work and torque
    b. Angular momentum and plank's constant
    c. Tension and surface tension
    d. Impulse and linear momentum
23. Give an example of
    a. a physical quantity which has a unit but no dimensions
    b. a physical quantity which has neither unit nor dimension
    c. a constant which has unit
    d. a constant which has no unit.

24. In the expression P= $El^2m^{-5}G^{-2}$, E , m , l and G denote energy, mass, angular momentum and gravitational constant, respectively. Show that p is a dimensionless quantity.
25. If the unit of velocity is 4m/s, the unit of acceleration is 24m/s^2 and the unit of force is 6 Newton. What are the units of length , mass and time?
26. The velocity of a particle at time t is given by v=at+b/t+c, where a, b, c, are constant . find the dimensions of a, b, and c.
27. A new system of unit is proposed in which unit of mass is α kg , unit of length is β m and unit of time is ϒ second . how much will 5 J measure in this new system.
28. The rate of flow (volume/time) Q depends upon:
    i. Coefficient of viscosity n
    ii. Radius of pipe R
    iii. Pressure gradient P/L

Find the expression for Q using dimensions . given k = π/8

29. When a neutron is trapped in a cubical box then it exerts pressure on the walls of the container due to its constant bombardment on the walls . it has been observed that the pressure depends on the plank's constant h, mass of neutron m, and edge length d of the cubical box.
30. If speed V , acceleration A and force F are considered as fundamental units , find the dimension of young's modulus
31. Surface tens1212ion of water is 72 dyne /cm. convert it into S.I. unit

CHEMISTRY

1.Define the law of multiple proportions. Explain it with two examples.
2.Define Gay lussac's law ?
3.Define limiting reagent?
4.Define Mole fraction .Calculate the mole fraction of H_2SO_4 in a solution containing 98% H_2SO_4 by mass.
5.What is Avogadro law?
6.Calculate the total number of electrons present in 1.6 g of methane.
7.Calculate no. of carbon and oxygen atoms present in 11.2 litres
of $C0_2$ at N.T.P.
8.What will be the mass of one atom of C-12 in grams?
9.What is the symbol for SI unit of mole? How is the mole defined?
10.What is the difference between molality and molarity?
11.The reactant which is entirely consumed in reaction is known as limiting reagent. In the reaction 2A + 4B → 3C + 4D, when 5 moles of A react with 6 moles of B, then
(i) which is the limiting reagent?
(ii) calculate the amount of C formed?
12.If 4 g of NaOH dissolves in 36 g of H_2O, calculate the mole
fraction of each component in the solution.
13.The density of 3 molal solution of NaOH is 1.110 g mL^{-1}
Calculate the molarity of the solution.
14.Calculate the mass percent of calcium, phosphorus and oxygen in calcium phosphate $Ca_3(PO_4)_2$.
15.What do you understand by stoichiometric coefficients in a chemical equation?
16. What will be the molarity of a solution, which contains 5.85 g of NaCl(s) per 500mL?
(i) 4 mol L^{-1} (ii) 20 mol L^{-1} (iii) 0.2 mol L^{-1}(iv) 2 mol L^{-1}
17. If 500 mL of a 5M solution is diluted to 1500 mL, what will be the molarity of the solution obtained?
(i) 1.5 M
(ii) 1.66 M
(iii) 0.017 M
(iv) 1.59 M
18.If the concentration of glucose (C6H12O6) in blood is 0.9 g L^{-1}
what will be the molarity of glucose in blood?
(i) 5 M
(ii) 50 M
(iii) 0.005 M
(iv) 0.5 M
19. What will be the molality of the solution containing 18.25 g of HCl gas in 500 g of water?
(i) 0.1 m
(ii) 1 M
(iii) 0.5 m
(iv) 1 m
20. What is the mass percent of carbon in carbon dioxide?
(i) 0.034%
(ii) 27.27%

(iii) 3.4%
(iv) 28.7%
21. The empirical formula and molecular mass of a compound are CH_2O and 180 g respectively. What will be the molecular formula of the compound?(i) $C_9H_{18}O_9$ (ii) CH_2O(iii) $C_6H_{12}O_6$(iv) $C_2H_4O_2$
22. Which of the following terms are unitless?
(a) Molality
(b) Molarity
(c) Mole fraction
(d) Mass percent
23.16 g of oxygen has same number of molecules as in
(a) 16 g of CO
(b) 28 g of N_2N_2
(c) 14 g of N_2N_2
(d) 1.0 g of H_2H_2
In the following questions a statement of Assertion (A) followed by a statement of Reason (R) is given. Choose the correct option out of the choices given below each question.
(i) Both A and R are true and R is the correct explanation of A.
(ii) A is true but R is false.
(iii) A is false but R is true.
(iv) Both A and R are false.
24. Assertion (A) : The empirical mass of ethene is half of its molecular mass.
Reason (R) : The empirical formula represents the simplest whole number ratio of various atoms present in a compound.
25. Assertion (A) : One atomic mass unit is defined as one twelfth of the mass of one carbon-12 atom.
Reason (R) : Carbon-12 isotope is the most abundunt isotope of carbon and has been chosen as standard.
26. Assertion (A) : Combustion of 16 g of methane gives 18 g of water.
Reason (R) : In the combustion of methane, water is one of the products.
27.One mole of glucose contains--------moles of carbon
a)1 b)6 c)12 d)2

28.The mass percentage of each constituent element present in 100gm of compound is called
i)molecular composition ii) Atomic composition iii) percentage composition iv) mass composition
29.---------- is the quantitative relationship between the reactants and product in a balanced chemical equation.
i) stoichiometry ii) complexometry iii)chemistry iv)reactions
30.The percentage composition of carbon in urea(NH_2CONH_2)
i)40 % ii)50% iii)20% iv)80 %
31.Mole is the SI unit of ---------- i)volume ii)pressure iii)amount of substance iv)Density
32.----------is the sum of atomic mass of all the atoms as given in the molecular formula of the substance.
i) Molecular mass ii)Empirical weight iii) percentage weight iv)percentage volume
33.In which mode of expression ,the concentration of a solution remains indepenent of temperature
i)molarity ii)Normality iii)Formality iv)Molality
34.How many molecules are present in one gram of hydrogen i) $6.02x10^{23}$ ii)$3.01x10^{23}$ iii)$2.5x10^{23}$ iv)$1.5x10^{23}$

35.An organometallic compound on analysis was found to contain ,C=64.4%,H=5.5% and Fe 29.9%.Determine the empirical formula.(Atomic mass of Fe =56 u)

PHYSICAL EDUCATION:

Write about the following information about Badminton .(Project File)

- History of sports/games
- Rules and regulation
- Measurement
- Specification
- Fundamental skill
- Terminology
- Sports Gear
- Sports Personalities
- Sports injury
- Important Tournament
- Warming up and Cool Down Exercise

MATHEMATICS

NOTE: DO IN ASSIGNMENT REGISTER

1. Write in roster form:

a. $A=\{t\ It^3 =t\ ,\ t£\ R\}$

b. B= {x Ix is a positive factor of a prime number}

2. Let A={1,2,3} write all subsets of set A.

3. Given that N={ 1,2,----------100} then write the subset A of N, whose elements are odd numbers.

4. 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 value of m and n.

5. If A and B are disjoint sets then how many elements in A U B?

6. Write set A={x|x is a positive integer less than 10 and 2x-10 is an odd number}

7. If set A has 3 element and set B has 6 elements. How many maximum elements in AUB and minimum elements in AUB.

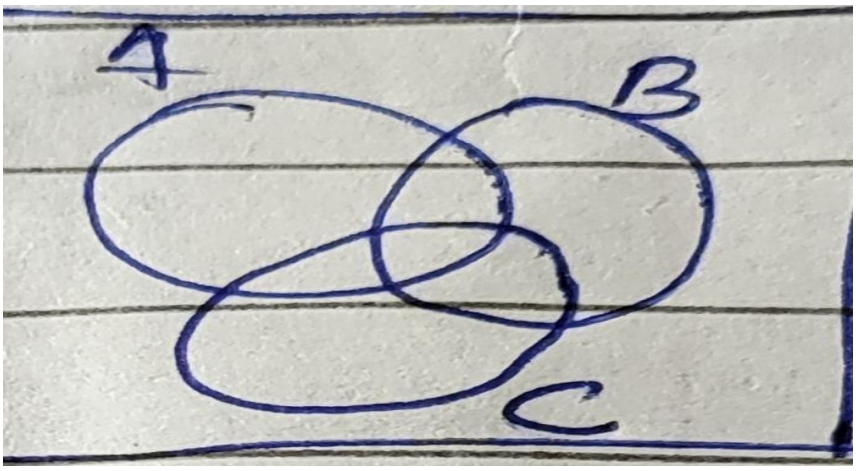
8. Given L={ 1,2,3,4} , M={3, 4,5,6} and N={1, 3,5} . Verify that L-(MUN) =(L-M) ∩ (L-N)

9. 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 nos. Draw a venn diagram showing the relation of U,A,B and C.

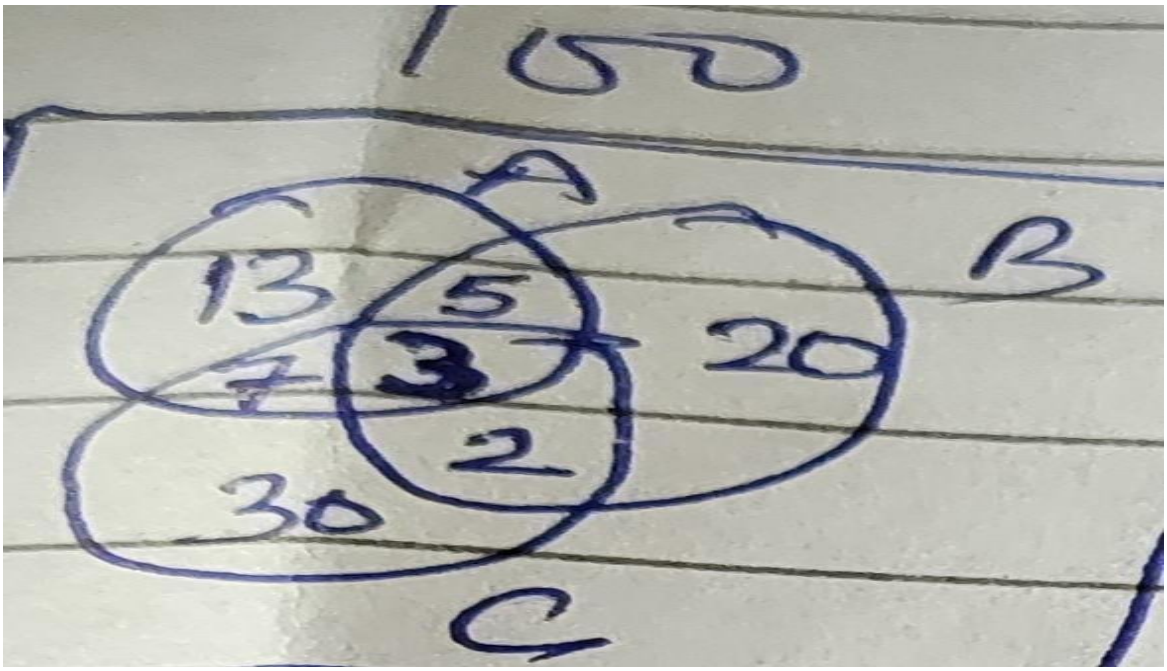
10. Let S ={x I x is a prime number less than 20} , P={x I xis a positive multiple of 3 less than 100} . Find n (S) + n(P).

11. A and B are two sets such that n(A -B) =20 + x, n(B – A)=3x and n(A∩ B)=x+1. Draw a venn diagram to illustrate this information . If n(A)=n(B), find n(A UB).

12. Shade the following set A' ∩(C-B)



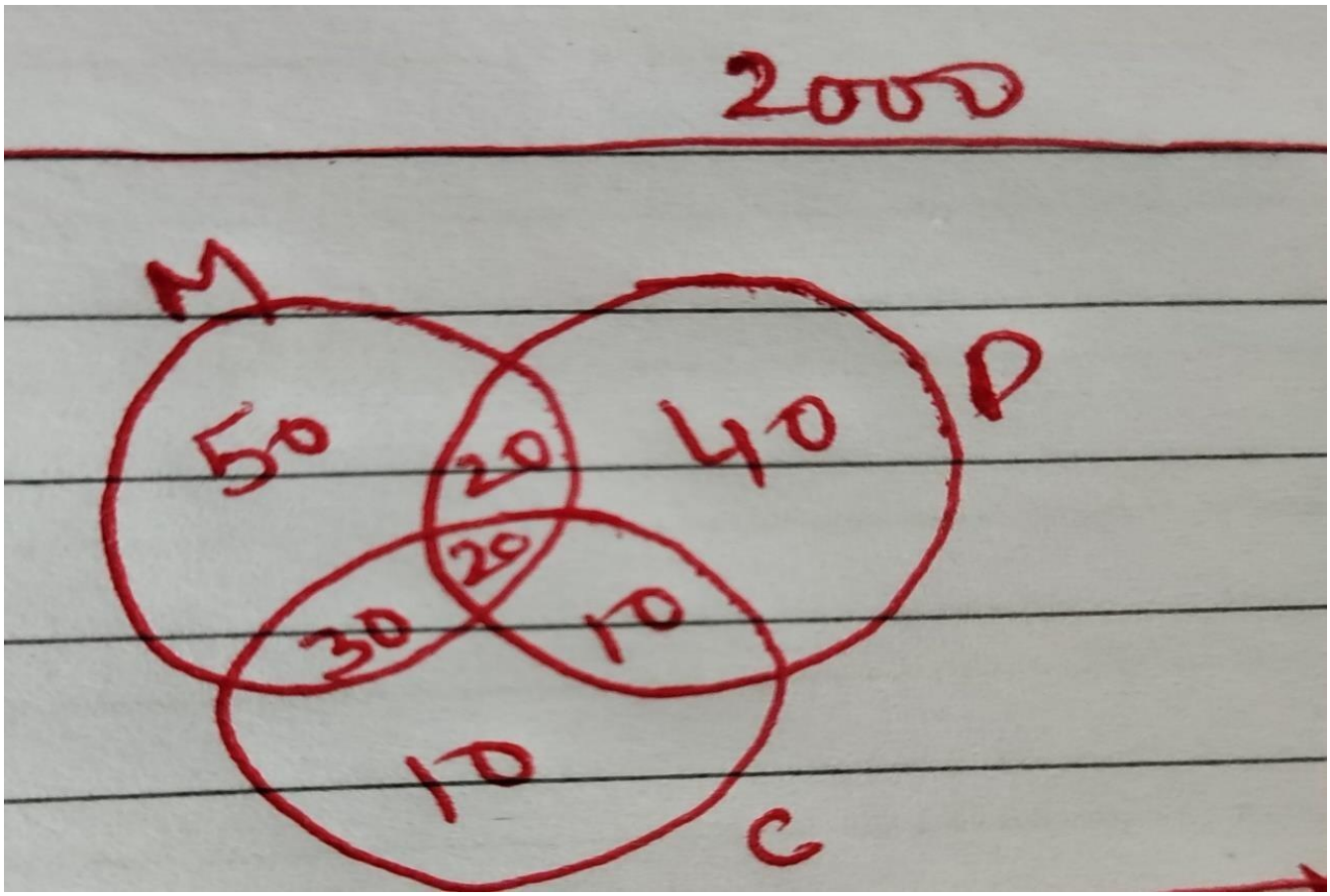
13. The following venn diagram represent the data of survey of 100 persons, who read magazine A, B and C. 20 do not read any magazine. Answer the following questions



1. Who read only magazine A .
2. Who read magazine A and B but not C.
3. Who read exactly two magazine.
4. At least one magazine.
5. Magazine A or C but not B.

14. The following venn diagram represent the survey of 2000 students of a school, who study Mathematics, Physics and Chemistry. Answer the following questions

1. The number if students who study at least one subject.
2. Who study exactly one subject.
3. who study Mathematics but not Chemistry.
4. None of these.



BIOLOGY

1. When and where does reduction division take place in the life cycle of a liverwort , a moss , a fern , a gymnosperm and an angiosperm?
2. Name three groups of plant that bear archegonia. Briefly describe the life cycle of any one of them
3. Mention theploidy of the following: protonemal cell of moss , primary endosperm nucleus in dicot , leaf cell of a moss , Prothallus of a fern, Gemma cells in Marchantia, meristem of a monocot , ovum of liverwort and zygote of fern.
4. What is heterospory ? Briefly comment on its significance . Give Examples.
5. Explain briefly the following terms with suitable examples:
   i. Protonema
   ii. Antheridium
   iii. Archegonium
   iv. Diplontic
   v. Sporophylls
   vi. Isogamy
6. Differentiate between the following
   i. Red algae and brown algae
   ii. Liverworts and moss
   iii. Homosporus and heterosporous pteridophyte
7. Describe the important characteristics of gymnosperms.
8. Do the following spots, draw it on right side and Write comment on it in practical file
   i. Lichen
   ii. Riccia

iii. Pinus cone
iv. Spirogyra
v. Flowering plant
vi. Hydra
vii. Roundworm
viii. Leech
ix. Cockroach
x. Earthworm
xi. Apple snail
xii. Starfish
xiii. Fish
xiv. Frog
xv. Lizard
xvi. Pigeon
xvii. Rabbit

COMPUTER SCIENCE

Write the answer of the following questions:

i. How data is different from Information? Explain with example.
ii. What is the basic division of a computer system? Explain with Diagram.
iii. What is the role of input unit? Give example
iv. Why storage/memory unit is so important?
v. Which unit of computer is used for producing the output? Explain with example.
vi. How is primary memory different from Secondary memory.
vii. What is the use of ALU and CU?
viii. Differentiate between Compiler and Interpreter.
ix. What is the difference between Hardware and software? Give example.
x. Write the difference between RAM and ROM.

ARTIFICIAL INTELLIGENCE

Activity: Create your login in IBM SKILLS BUILD platform and do the given activities and collect certificate as discussed in class

1. Introduction to AI 2. Your Future in AI 3. AI Ethics

TOPIC - INTRODUCTION: ARTIFICIAL INTELLIGENCE FOR EVERYONE

1. Differentiate between traditional programming and machine learning with the help of a diagram.
2. Mention any 2 areas where supervised, unsupervised and reinforcement learning is used.
3. What is data? Name the 2 types of data.
4. Differentiate between supervised and unsupervised learning giving example of each.
5. List 2 things that machine learning can do and cannot do.
6. Define a. Fuzzy Logic b. Artificial Super Intelligence c. AI winter d. Turing Test

PSYCHOLOGY

Q1. An autobiography is story of your life. Your holiday homework is to write an autobiography. You may write it in a conversation or story style. Share your photographs, family pictures etc. Feel free to write about any significant event that you have experienced and what you learnt from it.

(Use A4 size coloured or normal sheets, may use coloured pens / sketch pens etc)

Q2. Write an essay upon Positive Psychology (500 words).

Q3. Read, watch and review/report writing in some of movies, books, cases

List of books

a. Everyday psychology by Sigmund Freud
b. Man and his symbols by Carl Jung
c. The happiness of hypothesis by American social psychologist Johnathan
d. Stumbling of happiness by Denial Gilbert

List of cases

a. Phineas Gage
b. H. M.
c. Victor Leborgne (nick name “Tan”)
d. Wild Boy of Aveyron
e. Anna O

Q4. Write the following practicals, as per the material given in class:

1. Self-Concept test

2. Sinha Comprehensive Anxiety test

3. Ravens Intelligence test