Holiday Homework (English)
Class: XI (SPD)

Project:

Interview-Based Research:

Introduction

The project is a mandatory assignment for students. It contains **10 MARKS** out of which, **5 MARKS** will be awarded on timely submission of the **PROJECT FILE** and the remaining **5 MARKS** will be for the **VIVA** based on the file.

Objective:

This holiday homework aims at keeping the students connected with their syllabus of English and prepare them for the board examination. This also focuses on nurturing the creativity of the students and engage them constructively.

Topic:

"Withdrawal and Resignation is not Voluntary but a Helpless Choice for the Old People"

Instructions:

- Frame a questionnaire based on the preliminary research/background of the topic you choose.
- Conduct interviews with the target group.
- Record the minutes of the interviews.
- Prepare a report in about 800-1000 words describing the topic/issue/ giving your own opinion/ suggestions/measures/ viewpoints/its impact on people/your learning experience.
- The project should be neat, legible, with an emphasis on quality of content, accuracy of information, creative expression, proper sequencing and should be relevant as per the assigned topic.
- Use coloured practical sheets.
- Plagiarism is strictly prohibited.

Content of the Project File:

The Project must include the following:

- Cover page, with title of project, school, and student details.
- Statement of purpose/objectives.
- Certificate of completion under the guidance of the teacher.
- Action plan for the completion of the assigned task.
- Materials such as questionnaire for interview, notes taken during the interviews and evidence of the interview conducted (photograph)
- The 1000 words Report.
- List of resources/bibliography.

Answer the following questions in about 150 words each:

Q.1: Highlight the tremendous courage and forbearance shown by the two children during the struggle to keep the boat from sinking. What values do you learn from them?

Q.2: The hurdles of life can be challenged if we have confidence to make optimum use of our potential. Elaborate.

Q.3: The reaction of the crew and children gives us an insight into the human mind and how it can help us survive any disaster. Discuss.

Date of Submission: 05 July 2023.

Holiday Home Work

Summer Break 2023 – 24

Class – XI (BS) (VP)

Subject – Physics

1. Solve the work sheet attached.
2. Solve NCERT book exercises (especially examples) chapter 1 (Units & Measurements).
3. **Activity** – Prepare clinometers and using that find the approximate distance of moon from the earth. Using this distance find approximate diameter of the moon. Compare your results with actual values. List the possible errors that can arise and how they can be minimized. Prepare a report file.

   Note – Best suited time for observations will be a full moon night.
4. Prepare theoretical topics of chapters 1 with special focus on application based questions.
5. Make a formula note book and write formulae of chapter 1.

Objective Questions

Multiple Choice Questions

1. The quantity having the same unit in all system of unit is
(a) mass
(b) time
(c) length
(d) temperature

2. The SI unit of thermal conductivity is
(a) $J\,m^{-1}K^{-1}$
(b) $W\text{-}m\,K^{-1}$
(c) $W\,m^{-1}K^{-1}$
(d) $Jm\,K^{-1}$

3. The damping force on an oscillator is directly proportional to the velocity. The unit of the constant of proportionality is
(a) $kg\text{-}ms^{-1}$
(b) $kg\text{-}ms^{-2}$
(c) kgs^{-1}
(d) $kg\text{-}s$

4. The density of a material in SI units is $128\ kg\ m^{-3}$. In certain units in which the unit of length is 25 cm and the unit of mass is 50 g, the numerical value of density of the material is
(a) 40
(b) 16
(c) 640
(d) 410

5. If the value of work done is $10^{10}\,g\text{-}cm^{2}s^{-2}$, then its value in SI units will be
(a) $10\ kg\text{-}m^{2}s^{-2}$
(b) $10^{2}\ kg\text{-}m^{2}s^{-2}$
(c) $10^{4}\ kg\text{-}m^{2}s^{-2}$
(d) $10^{3}\ kg\text{-}m^{2}s^{-2}$

6. Amongst the following options, which is a unit of time?
(a) Light year
(b) Parsec
(c) Year
(d) None of these

7. The moon is observed from two diametrically opposite points A and B on earth. The angle θ subtended at the moon by the two directions of observation is $1°54'$; given that the diameter of the earth to be about 1.276×10^{7} m. Compute the distance of the moon from the earth.

(a) 4.5×10^{9} m
(b) 3.83×10^{8} m
(c) 2.5×10^{4} m
(d) 4×10^{7} m

8. The ratio of the volume of the atom to the volume of the nucleus is of the order of
(a) 10^{15}
(b) 10^{25}
(c) 10^{20}
(d) 10^{10}

9. Which of the following measurement is most precise? *(NCERT Exemplar)*
(a) 5.00 mm
(b) 5.00 cm
(c) 5.00 m
(d) 5.00 km

10. A student measured the length of a rod and wrote it as 3.50 cm. Which instrument did he use to measure it?
(a) A meter scale
(b) A vernier calliper where the 10 divisions in vernier scale matches with 9 divisions in main scale and main scale has 10 divisions in 1 cm
(c) A screw gauge having 100 divisions in the circular scale and pitch as 1 mm
(d) A screw gauge having 50 divisions in the circular scale and pitch as 1 mm

11. The length, breadth and height of a rectangular block of wood were measured to be $l = 12.13 \pm 0.02$ cm, $b = 8.16 \pm 0.01$ cm and $h = 3.46 \pm 0.01$ cm.
(a) 0.88%
(b) 0.58%
(c) 0.78%
(d) 0.68%

12. A student measures the time period of 100 oscillations of a simple pendulum four times. The data set is 90s, 91s, 92s and 95s. If the minimum division in the measuring clock is 1s, then the reported mean time should be
(a) (92 ± 2)s
(b) (92 ± 5)s
(c) (92 ± 1.8)s
(d) (92 ± 3)s

13. In successive experiments while measuring the period of oscillation of a simple pendulum. The readings turn out to be 2.63 s, 2.56 s, 2.42 s, 2.71s and 2.80 s. Calculate the mean absolute error.

    (a) 0.11 s   (b) 0.42 s   (c) 0.92 s (d) 0.10 s

14. The period of oscillation of a simple pendulum is $T = 2\pi\sqrt{L/g}$. Measured value of L is 20 cm known to 1 mm accuracy and time for 100 oscillations of the pendulum is found to be 90 s using a wrist watch of 1s resolution. What is the percentage error in the determination of g?

    (a) 5%   (b) 3%
    (c) 4%   (d) 7%

15. Calculate the mean percentage error in five observations,

    80.0, 80.5, 81.0, 81.5 and 82.

    (a) 0.74%   (b) 1.74%
    (c) 0.38%   (d) 1.38%

16. Calculate the relative errors in measurement of two masses 1.02 g $\pm$ 0.01g and 9.89g $\pm$ 0.01g .

    (a) $\pm$ 1% and $\pm$ 0.2%   (b) $\pm$1% and $\pm$ 0.1%
    (c) $\pm$2% and $\pm$ 0.3%   (d) $\pm$ 3% and $\pm$ 0.4%

17. The density of a material in the shape of a cube is determined by measuring three sides of the cube and its mass. If the relative errors in measuring the mass and length are respectively 1.5% and 1%, the maximum error in determining the density is

    (a) 2.5%   (b) 3.5%   (c) 4.5%   (d) 6%

18. Percentage errors in the measurement of mass and speed are 2% and 3%, respectively. The error in the estimation of kinetic energy obtained by measuring mass and speed will be

    (a) 8%   (b) 2%
    (c) 12%   (d) 10%

19. If the length of a pendulum is increased by 2%, then in a day, the pendulum

    (a) loses 764 s   (b) loses 924 s
    (c) gains 236 s   (d) loses 864 s

20. The length and breadth of a rectangular sheet are 16.2 cm and 10.1 cm, respectively. The area of the sheet in appropriate significant figures and error is

    (NCERT Exemplar)

    (a) 164 ± 3 cm^2 (b) 163.62 ± 2.6 cm^2
    (c) 163.6 ± 2.6 cm^2 (d) 163.62 ± 3 cm^2

21. In an experiment, four quantities a, b, c and d are measured with percentage error 1%, 2%, 3% and 4%, respectively. Quantity P is calculated as follows $P = \dfrac{a^3 b^2}{cd}$, percentage error in P is

    (a) 14%   (b) 10%   (c) 7%   (d) 4%

22. A physical quantity z depends on four observables a, b, c and d, as $z = \dfrac{a^2 b^{2/3}}{\sqrt{c}\, d^3}$.

    The percentages of error in the measurement of a, b, c and d are 2%, 1.5%, 4% and 2.5% respectively. The percentage of error in z is

    (a) 13.5%   (b) 16.5%   (c) 14.5% (d) 12.25%

23. The respective number of significant figures for the numbers 23.023, 0.0003 and 2.1×10^{-3} are

    (a) 5, 1, 2   (b) 5, 1, 5
    (c) 5, 5, 2   (d) 4, 4, 2

24. If 3.8×10^{-6} is added to 42×10^{-6} giving due regard to significant figures, then the result will be

    (a) 4.58×10^{-5} (b) 4.6×10^{-5}
    (c) 45×10^{-5} (d) None of these

25. The numbers 5.355 and 5.345 on rounding off to 3 significant figures will give

    (a) 5.35 and 5.34   (b) 5.36 and 5.35
    (c) 5.35 and 5.35   (d) 5.36 and 5.34

26. The mass and volume of a body are 4.237 g and 2.5 cm^3, respectively. The density of the material of the body in correct significant figures is

(NCERT Exemplar)

(a) 1.6048 g cm^{-3} (b) 1.69 g cm^{-3}
(c) 1.7 g cm^{-3} (d) 1.695 g cm^{-3}

27. If mass M, distance L and time T are fundamental quantities, then find the dimensions of torque.

(a) $[ML^2 T^{-2}]$ (b) $[MLT^{-2}]$
(c) $[MLT]$ (d) $[ML^2 T]$

28. Let l, r, c and v represent inductance, resistance, capacitance and voltage, respectively. The dimension of $\dfrac{l}{rcv}$ in SI units will be

(a) $[LT^2]$ (b) $[LTA]$
(c) $[A^{-1}]$ (d) $[LA^{-2}]$

29. Obtain the dimensional formula for universal gas constant.

(a) $[M L^2 T^{-2} mol^{-1} K^{-1}]$
(b) $[ML^3 T^{-1} mol^{-2} K^{-2}]$
(c) $[M^2 LT^{-1} mol^{-1} K^{-1}]$
(d) $[M^3 LT^{-2} mol^{-1} K^{-2}]$

30. Which two of the following five physical parameters have the same dimensions?

  I. Energy density
  II. Refractive index
 III. Dielectric constant
 IV. Young's modulus
  V. Magnetic field

(a) I and IV   (b) III and V
(c) I and II   (d) I and V

31. If P, Q, R are physical quantities, having different dimensions, which of the following combinations can never be a meaningful quantity?

(a) $(P - Q)/R$ (b) $PQ - R$
(c) PQ/R (d) $(PR - Q^2)/R$

32. The potential energy of a particle varies with distance x from a fixed origin as $U = \dfrac{A\sqrt{x}}{x + B}$, where A and B are constants. The dimensions of AB are

(a) $[ML^{5/2} T^{-2}]$ (b) $[ML^2 T^{-2}]$
(c) $[M^{3/2}L^3 T^{-2}]$ (d) $[ML^{7/2} T^{-2}]$

33. In the formula, $X = 3YZ^2$, X and Z have dimensions of capacitance and magnetic induction. The dimensions of Y in MKSQ system are

(a) $[M^{-3}L^{-2}T^4Q^4]$ (b) $[ML^2T^8Q^4]$
(c) $[M^{-2}L^{-3}T^2Q^4]$ (d) $[M^{-2}L^{-2}TQ^2]$

34. If the velocity v (in cms^{-1}) of a particle is given in terms of t (in second) by the relation $v = at + \dfrac{b}{t + c}$, then the dimensions of a, b and c are

	a	b	c
(a)	$[L]$	$[LT]$	$[T^2]$
(b)	$[L^2]$	$[T]$	$[LT^{-2}]$
(c)	$[LT^2]$	$[LT]$	$[L]$
(d)	$[LT^{-2}]$	$[L]$	$[T]$

35. A book with many printing errors contains four different formulae for the displacement y of a particle under going a certain periodic motion,

where, a = maximum displacement of the particle, v = speed of the particle, T = time period of motion.
Which are the correct formulae on dimensional grounds?

(a) $y = a\sin\dfrac{2\pi t}{T}$ (b) $y = a\sin vt$

(c) $y = \left(\dfrac{a}{T}\right)\sin(t/a)$ (d) None of these

36. If speed V, area A and force F are chosen as fundamental units, then the dimensional formula of Young's modulus will be

(a) $[FA^2 V^{-3}]$ (b) $[FA^{-1}V^0]$
(c) $[FA^2 V^{-2}]$ (d) $[FA^2 V^{-1}]$

37. If dimensions of critical velocity v_c of a liquid flowing through a tube are expressed as $[\eta^x \rho^y r^z]$, where η, ρ and r are the coefficient of viscosity of liquid, density of liquid and radius of the tube respectively, then the values of x, y and z are given by

(a) $1, -1, -1$
(b) $-1, -1, 1$
(c) $-1, -1, -1$
(d) $1, 1, 1$

38. The density of a material in CGS system is 10 g cm^{-3}. If unit of length becomes 10 cm and unit of mass becomes 100 g, the new value of density will be

(a) 10 units
(b) 100 units
(c) 1000 units
(d) 1 unit

39. When 1 m, 1 kg and 1 min are taken as the fundamental units, the magnitude of the force is 36 units. What will be the value of this force in CGS system?

(a) 10^5 dyne
(b) 10^3 dyne
(c) 10^8 dyne
(d) 10^4 dyne

40. The solid angle subtended by the periphery of an area 1 cm^2 at a point situated symmetrically at a distance of 5 cm from the area is .... steradian.

(a) 2×10^{-2} (b) 4×10^{-2} (c) 6×10^{-2} (d) 8×10^{-2}

41. Measure of two quantities along with the precision of respective measuring instrument is $A = 2.5$ ms$^{-1} \pm 0.5$ ms^{-1}, $B = 0.10$ s ± 0.01 s. The value of AB will be ....   *(NCERT Exemplar)*

(a) (0.25 ± 0.08) m
(b) (0.25 ± 0.5) m
(c) (0.25 ± 0.05) m
(d) (0.25 ± 0.135) m

42. It is claimed that two cesium clocks, if allowed to run for 100 yrs without any disturbance may differ by only about 0.02 s. Then the accuracy of the clock in measuring a time interval of 1 s is ....

(a) 10^{-10}
(b) 10^{-11}
(c) 10^{-5}
(d) 10^{-8}

43. Photon is quantum of radiation with energy $E = h\nu$, where ν is frequency and h is Planck's constant. The dimensions of h are the same as that of ....

(a) linear impulse
(b) angular impulse
(c) linear momentum
(d) energy

44. Which amongst the following statement is incorrect regarding mass?

(a) Its SI unit is kilogram.
(b) It does not depend on the location of the object in space.
(c) It is the basic property of matter.
(d) While dealing with atoms, kilogram is a convenient unit for measuring mass.

45. Choose the incorrect statement out of the following.

(a) Every measurement by any measuring instrument has some errors.
(b) Every calculated physical quantity that is based on measured values has some errors.
(c) A measurement can have more accuracy but less precision and *vice-versa*.
(d) The percentage error is different from relative error.

46. Given that T stands for time period and l stands for the length of simple pendulum. If g is the acceleration due to gravity, then which of the following statements about the relation $T^2 = l/g$ is correct?

(a) It is correct both dimensionally as well as numerically.
(b) It is neither dimensionally correct nor numerically.
(c) It is dimensionally correct but not numerically.
(d) It is numerically correct but not dimensionally.

47. Match the following columns.

	Column I		Column II
A.	Capacitance	p.	volt $(ampere)^{-1}$
B.	Magnetic induction	q.	volt-sec $(ampere)^{-1}$
C.	Inductance	r.	newton $(ampere)^{-1}$ $(metre)^{-1}$
D.	Resistance	s.	$coulomb^2 (joule)^{-1}$

Codes

	A	B	C	D
(a)	q	r	s	p
(b)	s	r	q	p
(c)	r	s	p	q
(d)	s	p	q	r

48. Match the Column I (unit) with Column II (value) and select the correct option from the codes given below.

	Column I		Column II
A.	1 are	p.	200 mg
B.	1 bar	q.	1.013×10^5 Pa
C.	1 carat	r.	10^2 m^2

Codes

	A	B	C			A	B	C
(a)	q	p	r		(b)	r	r	p
(c)	r	q	p		(d)	r	p	q

49. Names of units of some physical quantities are given in Column I and their dimensional formulae are given in Column II and select the correct option from the codes given below.

	Column I		Column II
A.	Pa-s	p.	$[L^2T^{-2}K^{-1}]$
B.	Nm-K^{-1}	q.	$[MLT^{-2}A^{-1}K^{-1}]$
C.	J kg^{-1} K^{-1}	r.	$[ML^{-1}T^{-1}]$
D.	Wb m^{-1} K^{-1}	s.	$[ML^2T^{-2}K^{-1}]$

Codes

	A	B	C	D
(a)	s	r	p	q
(b)	r	q	s	p
(c)	r	p	s	q
(d)	r	s	p	q

Assertion-Reasoning MCQs

For question numbers 50 to 59, two statements are given-one labelled Assertion (A) and the other labelled Reason (R). Select the correct answer to these questions from the codes (a), (b), (c) and (d) are as given below

(a) Both A and R are true and R is the correct explanation of A.
(b) Both A and R are true but R is not the correct explanation of A.
(c) A is true but R is false.
(d) A is false and R is also false.

50. Assertion Unit chosen for measuring physical quantities should not be easily reproducible.

Reason Unit should change with the changing physical conditions like temperature, pressure, etc.

51. Assertion The unit used for measuring nuclear cross-section is 'barn'.

Reason 1 barn = 10^{-14} m^2.

52. Assertion When we change the unit of measurement of a quantity, its numerical value changes.

Reason Smaller the unit of measurement smaller is its numerical value.

53. Assertion Parallax method is used for measuring distances of nearby stars only.

Reason With increase in the distance of star from earth, the parallactic angle becomes too small to be measured accurately.

54. Assertion Out of two measurements $l = 0.7$ m and $l = 0.70$ m, the second one is more accurate.

Reason In every measurement, the last digit is not accurately know.

55. Assertion Random errors arise due to random and unpredictable fluctuations in experimental conditions.

Reason Random errors occurred due to irregularly with respect to sign and size.

56. Assertion When a quantity appears with a power n greater than one in an expression, its error contribution to the final result decreases n times.

Reason In all mathematical operations, the errors are not additive in nature.

57. Assertion Special functions such as trigonometric, logarithmic and exponential functions are not dimensionless.

Reason A pure number, ratio of similar physical quantities, such as angle and refractive index, has some dimensions.

58. Assertion Specific gravity of a fluid is a dimensionless quantity.

Reason It is the ratio of density of fluid to the density of water.

59. Assertion The method of dimensions analysis cannot validate the exact relationship between physical quantities in any equation.

Reason It does not distinguish between the physical quantities having same dimensions.

Case Based MCQs

Direction Answer the questions from 60-64 on the following case.

Measurement of Physical Quantity

All engineering phenomena deal with definite and measured quantities and so depend on the making of the measurement. We must be clear and precise in making these measurements. To make a measurement, magnitude of the physical quantity (unknown) is compared.

The record of a measurement consists of three parts, i.e. the dimension of the quantity, the unit which represents a standard quantity and a number which is the ratio of the measured quantity to the standard quantity.

60. A device which is used for measurement of length to an accuracy of about 10^{-5} m, is
   (a) screw gauge   (b) spherometer
   (c) vernier callipers   (d) Either (a) or (b)

61. Which of the technique is not used for measuring time intervals?
   (a) Electrical oscillator
   (b) Atomic clock
   (c) Spring oscillator
   (d) Decay of elementary particles

62. The mean length of an object is 5 cm. Which of the following measurements is most accurate?
   (a) 4.9 cm   (b) 4.805 cm
   (c) 5.25 cm   (d) 5.4 cm

63. If the length of rectangle $l = 10.5$ cm, breadth $b = 2.1$ cm and minimum possible measurement by scale = 0.1 cm, then the area is
   (a) 22.0 cm^2 (b) 21.0 cm^2
   (c) 22.5 cm^2 (d) 21.5 cm^2

Summer Vacation Homework
Class XI, Mathematics (BS)

1. Prepare Concepts notes of the following chapters:
   a. Sets
   b. Relations and Functions

2. Activity:

   To represent set theoretic operations using Venn diagrams.

3. Solve the given Assignments.

1. Write following intervals in set-builder form :
   (i) (-7, 0)   (ii) [6, 12]   (iii) (6, 12)   (iv) [-20, 3)   v) (- 3, 3]

2. If A = {5, 7, 9, 10, 11, 12 }, B = { 9, 10, 13, 14, 16 }, then Verify :
   i) (A – B) U (B – A) = (A U B) – (A ∩ B)   ii) A – (B ∩ C) = (A – B) U (A – C)

3. If U = {x : x ∈ N and x ≤ 12 }, A = { x : x is even prime no} and B = { x : x is a factor of 24} then
   Verify: A' – B' = B – A

4. Let A and B be two sets such that n(A) = 20, n(A U B) = 42 and n(A ∩ B) = 4. Find
   i) n(B) ii) n(A – B)   iii) n(B – A).

5. A and B are two sets such that n(A) = 3, n(B) = 6. Find the maximum and min. values of n(A∩B).

6. If n(U) = 25, n(A) = 15, n(A∩B) = 6 and n(AUB)' = 8, then find i) n(B – A).   ii) n(B).

7. If U={2, 3, 5, 7, 9} is universal set & A={3, 2} and B={2, 5, 7, 9} then prove that:
   (i) (A U B) = A'∩B'   (ii) (A ∩ B)' = A'UB'.

8. Let U = {1, 2, 3, 4, 5, 6}, A = {2, 3} and B = {3, 4, 5}.
   Find A', B', A' ∪ B', A ∩ B and hence show that (A ∩ B)' = A' ∪ B'

9. If U = {1, 2, 3, 4, 5, 6, 7, 8, 9}, A = {2, 4, 6, 8}, B = {2, 3, 5, 7}, Verify De-Morgan's laws.

10. If A = {2, 6, 8} , B = {1, 3, 7, 8}, U = {1, 2, 3, 6, 7,8, 9} then Verify both the De Morgan's laws.

11. List all subsets of i) {-1, 0, 1}   ii) { a, b}   iii) φ

12. Write down the subsets of {2, {3}}. Also find the power set.

13. Let A={e, f, g}, Write the subsets and power set of set A.

14. Show that: n {P [P (P (φ)]} = 4.

15. Prove : n (A ∪ B) = n (A) + n (B) – n (A ∩ B), Where A, B are finite sets.

16. Let U be the set of all triangles in a plane. If A is the set of all triangles with at least one angle different from 60°, what is A'.

17. If X and Y are two sets such that X ∪ Y has 18 elements, X has 8 elements and Y has 15 elements, How many elements X ∩ Y have?

18. Out of 500 car owners investigated, 400 owned car A and 200 owned car B, 50 owned both A and B cars. Is this data correct?

19. Draw the Venn-Diagrams for
    (i) A-B (ii) A' ∩ B' (iii) A' U B' (iv) (B-A)' (v) (A ∩ B)' and vi) A' ∪ B'

20. In a survey of 600 students in a school, 150 students were found to be taking tea and 225 taking coffee, 100 were taking both tea and coffee. Find how many students were taking neither taking tea nor coffee.

21. A survey of 500 television viewers, produced the following information; 285 watch football, 195 watch hockey, 115 watch basketball, 45 watch football and basketball, 70 watch football and hockey, 50 watch hockey and basketball, 50 do not watch any of the three games. How many watch all the three games? How many watch exactly one of the three games? How many watch atleast one of the games?

22. 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 and 8 liked all the three products. Find how many liked product C only.

23. In a survey of 700 students in a college, 180 were listed as drinking Limca, 275 as drinking Mirinda and 95 were listed as both drinking Limca as well as Mirinda. Find how many students were drinking neither Limca nor Mirinda.

24. Out of a group of 50 persons, 32 take eggs, 25 take meat and 15 take both eggs and meat. How many of them are pure vegetarians?

25. In an exam, 80 students secured first class marks in English or Maths. Out of these 50 students obtained first class marks in Maths and 10 in English and Maths both. How many students secured first class marks in English only.

26. In a survey of 25 students, it was found that 15 had taken mathematics, 12 had taken physics and 11 had taken chemistry, 5 had taken maths and chemistry, 9 had taken maths and physics, 4 had taken physics and chemistry and 3 had taken all three subjects. Find the number of students who had taken. i) Only Maths (ii) Physics and Chemistry but not Maths (iii) Atleast one of the three subjects (iv) Only one of the subjects (v) Maths and Physics but not Chemistry (vi) None of the three subjects.

27. A college awarded 38 medals in Football, 15 in Basketball and 20 in cricket. If these medals went to 58 men and only 3 men got medals in all the three sports, how many received medals in exactly two of the 3 sports?

28. 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:
    (i) the number of people who read at least one of the newspapers.
    (ii) the number of people who read exactly one newspaper.

29. In a survey of 400 students in a school, 100 were listed as drinking apple juice, 150 as drinking orange juice and 75 were listed as drinking apple as well as orange juice. Find how many students were drinking neither apple juice nor orange juice?

30. If A and B are two given sets, then prove that $A - B = A \cap B'$.

31. In a group of 950 persons, 750 can speak Punjabi and 460 can speak English. Find (i) how many can speak both?

32. A and B are two sets such that $n(A - B) = 20 + x$, $n(B - A) = 3x$ and $n(A \cap B) = x + 1$. Draw a Venn diagram to illustrate this information. Find (i) the value of x (ii) $n(A \cup B)$.

33. In a survey of 600 students in a school, 150 students were found to be taking tea and 225 taking coffee,100 were taking both tea and coffee. Find how many students were taking neither tea nor coffee?

34. In a survey of 100 students , the number of students studying the various languages were found to be: English only 18, English but not Hindi 23 , English and Sanskrit 8, English 26, Sanskrit 48, Sanskrit and Hindi 8, no language 24. Find i) How many students were studying Hindi?
    ii) How many students were studying English and Hindi?

35. In a survey of 500 persons it was found that 285 watch football,195 watchhockey,115 watch basketball,45 watch football and basketball,70 watch football and hockey,50 watch Hockey and basketball,50 do not watch do not watch any of the three games. How many watch all the three games? How many watch exactly one of the three games? How many watch at least one of these games?

36. In a survey of 100 persons it was found that 28 read magazine A, 30 read magazine B, 42 read magazine C, 8 read magazines A and B, 10 read magazines A and C, 5 read magazines B and C and 3 read all three magazines. Find: a) How many read none of three magazines? b) How many read magazine C only?

37. In an university, out of 100 students 15 offered Mathematics only; 12 offered statistics only; 8 offered only Physics; 40 offered Physics and Mathematics; 20 offered Physics and Statistics; 10 offered Mathematics and Statistics, 65 offered Physics. Find the number of students who
    (i) offered Mathematics   (ii) offered Statistics   (iii) did not offer any of the above three subjects.

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38. Lab Activity: The following activity is to be recorded in Lab Activity file.
    To Represent set theoretic operations using Venn diagrams.

1. Go through the Chapter some basic concept of chemistry and make notes of important topics and learn important definition and derivation
2. Solve the NCERT Examples, Index Question, and Exercise question in your Notebook.
3. Learn Periodic table with electronic configuration of elements, classification based on metallic and non-metallic property.
4. PPT presentation: -   prepare a PPT on formulae of Unit 1 - some basic concept,

   Prepare PPT on classification of Periodic table.

5. **Project Work:- Green Chemistry**
6. Online quiz link –
   https://docs.google.com/forms/d/e/1FAIpQLSef6b-n95VplcUz0AcvJhCA12NNi0OLzgnJeqPzJkbYEDiODw/viewform?usp=sf_link

   https://docs.google.com/forms/d/e/1FAIpQLSceTkxcyon2EDUopEhRlTA39xqHyIj4wLVmMN5JI1vtg6QJ-Q/viewform?usp=sf_link

7. Do the given Assignment in your notebook.

BIRLA SHISHU VIHAR, PILANI
SUBJECT- CHEMISTRY
CLASS- XI
Assignment

1. What is chemistry?

2. What is the difference between molecules and compounds? Give examples of each.

3. What is the SI unit of density?

4. What do you understand by significant figures?

5. What is the value of one mole?

6. .At NTP, what will be the volume of molecules of one mole H_2 gas?

7. Calculate the number of molecules present in 0.5 moles of CO2?

8. 1L of a gas at STP weighs 1.97g. What is molecular mass.

9. What is stoichiometry?

10. What is 1molal solution?

11. Calculate molecular mass of – C_2H_6 , $C_{12}H_{22}O_{11}$, H_2SO_4 , H_3PO_4.

12. Give one example each of a molecule in which empirical formula and molecular formula are   (i) same   (ii) Different.

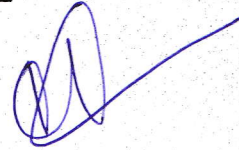13. Calculate the number of moles in the following masses –

(i) 7.85g of Fe   (ii) 7.9mg of Ca

14. How much potassium chlorate should be heated to produce 2.24L of oxygen at NTP?

15. Write an expression for molarity and molality of a solution.

16. Calculate the weight of lime (CaO) obtained by heating 2000kg of 95% pure limestone $(CaCO_3)$.

17. 4 litres of water are added to 2L of 6 molar HCl solutions. What is the molarity of resulting solution?

18. What volume of 10M HCl and 3M HCl should be mixed to obtain 1L of 6M HCl solution?

19. Determine the empirical and molecular formula for chrysotile asbestos. Chrysotile has the following percent composition: 28.03% Mg, 21.60% Si, 1.16% H, and 49.21% O. The molar mass for chrysotile is 520.8 g/mol.

20. A major textile dye manufacturer developed a new yellow dye. The dye has a percent composition of 75.95% C, 17.72% N, and 6.33% H by mass with a molar mass of about 240 g/mol. Determine the molecular formula of the dye.

21. What is the total mass of *hydrogen* in each of the molecules?

    (a) CH_4
    (b) $CHCl_3$
    (c) $C_{12}H_{10}O_6$
    (d) $CH_3CH_2CH_2CH_2CH_3$

22. Calculate the molecular or formula mass of each of the following:

    1(a) P_4
    (b) H_2O
    (c) $Ca(NO_3)_2$
    (d) CH_3CO_2H (acetic acid)
    (e) $C_{12}H_{22}O_{11}$ (sucrose, cane sugar).

23. Take the reaction: $NH_3 + O_2 \rightarrow NO + H_2O$. In an experiment, 3.25 g of NH_3 are allowed to react with 3.50 g of O_2.

    a. Which reactant is the limiting reagent?

    b. How many grams of NO are formed?

    c. How much of the excess reactant remains after the reaction?

24. If 4.95 g of ethylene (C_2H_4) are combusted with 3.25 g of oxygen.

    a. What is the limiting reagent?

    b. How many grams of CO_2 are formed?

25. Consider the reaction of $C_6H_6 + Br_2 \rightarrow C_6H_5Br + HBr$

    a. What is the theoretical yield of C_6H_5Br if 42.1 g of C_6H_6 react with 73.0 g of Br_2?

    b. If the actual yield of C_6H_5Br is 63.6 g, what is the percent yield?

Q 1: Draw the labelled diagram of following :-

    i. Bacteria of different shape. (Ch – 2)
    ii. TMV and bacteria phase virus. (Ch – 2)
    iii. Position of floral parts on thalamus. (Ch – 5)
    iv. Types of aestivation in corolla. (Ch – 5)
    v. Types of placentation. (Ch – 5)
    vi. Structure of monocot seed. (Ch – 5)
    vii. Structure of dicot seed. (Ch – 5)
    viii. Floral diagram with floral formula. (Ch – 5)
    ix. Various type of vascular bundles. (Ch – 6)
    x. TS of dicot root and monocot stem. (Ch – 6)
    xi. Plant cell (Ch – 8)
    xii. Animal cell (Ch – 8)
    xiii. Structure of chloroplast (Ch – 8)
    xiv. Structure of mitochondria (Ch – 8)

Q2: Draw the chart for the above diagram as per the roll numbers assigned.

Q3: Do the given worksheet in the separate notebook.

Q4: Prepare the notes of chapter 1, 2, and 3.

Birla Shishu Vihar, Pilani
Summer Vacation Holiday-Homework
Class-XI
Subject: Computer Science(New:083) (AN)

Q1 Reduce the following Boolean function with the help of Karnaugh's map:

$F (A, B, C, D) = \Sigma (0, 1, 2, 3, 12, 13, 14, 15)$

Q2 Reduce the following Boolean function with the help of Karnaugh's map:

$F (a, b, c, d) = \Sigma (0, 1, 2, 4, 5, 6, 8, 9, 12, 13, 14)$

Q3 Reduce the following Boolean function with the help of Karnaugh's map:

$F (a, b, c, d) = \Sigma (1, 2, 3, 11, 12, 14, 15)$

Q4 Prepare a table of combination for the following Boolean algebra expressions.
   a) X Y + XY   b) XY Z + X Y Z

Q5 Verify using truth table for the following Boolean algebra.
   a) X + XY = X   b) X + Y = Y+X

Q6 State and prove Distributive and Associate law using truth table

Q7 Write a python Program to :

1. To add two numbers
2. To Subtract two numbers
3. To Multiply two numbers
4. To divide two numbers
5. To find Simple Interest
6. To find area of Circle
7. To find Perimeter of Square
8. To Display "Hello World" message on Console
9. To extract last digit of a given number
10. To find the cube of a given number

Q8 Write any 4 features of Python.

Q9 What is an Identifier? Write the rules of Constructing Identifiers.

Q10 What is Token? Explain types of tokens.

Birla Shishu Vihar , Pilani
Holiday homework
Music - Class 11th (CS)

Prepare a file on any topic related to music such as :

1) Instruments Used in Indian Classical Vocal / Instrumental Music(at least two pages on one instrument).

2) Famous Indian Classical Vocalists(at least two pages on one artist).

3) Famous Indian Classical Instrumentalists (at least two pages on one artist).

4) Raga Therapy.

5) Medication by Indian Classical Music.

6) Types of Singing(गायकी प्रकार) in Indian classical Music (शास्त्रीय संगीत)and in Light Music (सुगम संगीत)

File should be handwritten and in Hindi and At least 10-12 pages.

CLASS-XI (Physical Edu.) BSS

***Record File shall include: ➤ Practical-1: Fitness tests administration. (SAI Khelo India Test) ➤ Practical-2: Procedure for Asanas, Benefits & Contraindication for any two Asanas for each lifestyle disease. ➤ Practical-3: Anyone one IOA recognized Sport/Game of choice. Labelled diagram of Field & Equipment. Also mention its Rules, Terminologies & Skills.