



Holiday Homework_XI-A₂

(Physics)

Q.1. Subtract 6.501 from 9.8521.

Q.2. Solve the following to correct significant figures:

(i) 1.02×26 (ii) $306 \div 5.6$

Q.3. A physical quantity P is related to four measurable quantities a,b,c and d as follows:

$$P = a^2 b^3 c^{5/2} d^{-2}.$$

The percentage error of measured in a,b,c,d are 1%, 2%, 3% and 4% respectively. What is the percentage error in P.

Q.4. An artificial satellite is revolving around a planet of mass M and radius R in a circular orbit of radius r. From Kepler's 3rd law about the period of a satellite around a common central body, square of the period of revolution T is proportional to the cube of the radius of orbit r. Show using dimensional analysis that $T = \frac{K}{R} \sqrt{r^3 / g}$, where K is

constant.

Q.5. Why do we have different units for the same physical quantity ?

Q.6. Name the quantity represented by the following dimensional formulae.

(i) ML^2T^{-1} (ii) ML^2T^{-2} (iii) ML^3T^0

Q.7. A particle is moving in a straight line. Its displacement at any instant is $x = 12t + 4t^4$. Find its average acceleration at time $t = 2$ seconds.

Q.8. Calculate the distance traveled by the particle in nth second.

Q.9. The displacement x of a particle moving in one dimension, under the action of a constant force is related to time of by the equation, $t = \sqrt{x} + 3$. Find the displacement of the particle when its velocity is zero.

Q.10. Show that the displacement of a particle in given interval of time is equal to the area under velocity. Time graph of uniform motion.

Q.11. Show that $\vec{A} = -6\hat{i} + 9\hat{j} - 12\hat{k}$ and $\vec{B} = 2\hat{i} - 3\hat{j} + 4\hat{k}$ are parallel to each other.

Q.12. At what angle do the forces $(P+Q)$ and $(P-Q)$ acts so that the resultant is $\sqrt{3P^2 + Q^2}$.

Q.13. The resultant of two forces $3P$ and $2P$ is R . If the first force is doubled then the resultant is also doubled. Find the angle between two forces.

Q.14. What do you mean by horizontal range of projectile? Derive an expression for it?

(Chemistry)

- ❖ INTEX and NCERT Exercise Solutions: Classification of elements and periodicity in properties.
- ❖ Collect information and raw material for an investigatory project to be performed in school in July 2018. Students may choose the project work in any of the following areas:-
 - (1) Harmful effects of cold drinks.
 - (2) Ammonia content in hair colour.
 - (3) Pollution level near school in the morning hours.
 - (4) Ways to cause less pollution by changing our life style.
 - (5) Comparative study of fresh fruit juices and packaged fruit juices.
 - (6) OR Any other suitable topic.
- ❖ Prepare a seminar on any of the following topics:-
 - (1) Chemistry in Kitchen

Note:- Work in kitchen with parents and find the chemistry involved.

(2) Chemistry in everyday life.

Note:- Collect the different everyday used goods or items and try to find the chemistry applications in them.

(English)

Q.1. 10 Reading Passage (1-10 June, 2018)

Q.2. 05 Passage for note-making (16-20 June, 2018)

Q.3. 05 Letters for practice (26-30 June, 2018).

(Maths)

Q.1. For any two sets A and B prove that $P(A) = P(B) \Rightarrow A = B$.

Q.2. Find the smallest set A such that $A \cup \{1, 2\} = \{1, 2, 3, 5, 9\}$.

Q.3. How many elements has $P(A)$ if $A = \phi$.

Q.4. If $U = \{1, 2, 3, 4, 5, 6, 7, 8\}$, $A = \{1, 2, 3, 4\}$, $B = \{3, 4, 6, 7\}$ then find $A \Delta B$.

Q.5. 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 German 8, English 26, German 48, German and Hindi 8, no language 24.

Find the number of students who were studying (i) Hindi (ii) English and Hindi (iii) English, Hindi and German.

Q.6. 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 Basket ball, 50 do not watch any of three games. How many watch all the three games ? How many watch exactly one of 3 games.

Q.7. If $R = \{(x, y), x, y \in \mathbb{Z}, x^2 + y^2 \leq 4\}$ then find domain of R.

Q.8. Let R is relation on N defined by $R = \{(a, b), a, b \in \mathbb{N}, a = b^2\}$ are the following true

(i) $(a, a) \in R$ for all $a \in \mathbb{N}$

(ii) $(a, b) \in R \Rightarrow (b, a) \in R$ for all $a, b \in \mathbb{N}$

(iii) $(a, b) \in R, (b, c) \in R \Rightarrow (a, c) \in R$ for all $a, b, c \in \mathbb{N}$

Q.9. If $A = \{1, 2, 3, 5\}$ and $B = \{4, 6, 9\}$. Define a relation R from A to B by $R = \{(x, y) : \text{the difference between } x \text{ and } y \text{ is odd, } x \in A, y \in B\}$. Write R in Roster form.

Q.10. If A is a non-empty set having n elements then how many relations on A are possible ?

Q.11. Let $A = \{12, 13, 14, 15, 16, 17\}$ and $f : A \rightarrow \mathbb{Z}$ be a function given by $f(x) = \text{highest prime factor of } x$ then find range of f.

Q.12. Find domain of $\sqrt{\frac{x-2}{3-x}}$.

Q.13. Find domain of $\frac{1}{\sqrt{x^2-1}}$

Q.14. Find domain and range of $f(x) = \frac{1}{\sqrt{x-[x]}}$.

Q.15. Find domain and range of $f(x) = 1 - |x - 3|$.

Q.16. Find domain of $\sqrt{\frac{1-|x|}{2-|x|}}$.

Q.17. Let f and g be real functions defined by $f(x) = \sqrt{x+2}$ and $g(x) = \sqrt{4-x^2}$ then find $f+g, f-g, f \cdot g$ and $\frac{f}{g}$.

Q.18. Assuming that a person of normal sight can read print at such a distance that the letters subtend an angle of $5'$ at his eye, what is the height of the letters that he can read at a distance of 12 meters.

Q.19. Find the angle between the minute hand of a clock and hour hand when time is 7:20 a.m.

Q.20. Find the diameter of sun in km supposing that it subtends an angle of $32'$ at the eye of an observer. Given that the distance of sun is 91×10^6 km.

Q.21. Prove $(1 + \cot x - \operatorname{cosec} x)(1 + \tan x + \sec x) = 2$.

Q.22. Prove $(\sin x + \operatorname{cosec} x)^2 + (\cos x + \sec x)^2 = \tan^2 x + \cot^2 x + 7$.

Q.23. Prove $3(\sin x - \cos x)^4 + 6(\sin x + \cos x)^2 + 4(\sin^6 x + \cos^6 x) - 13 = 0$.

Q.24. Find quotient of identity function by modulus function.

Q.25. Find radian measure of $5^\circ 37' 30''$.

(Sanskrit)

❖ क्त क्तवतु क्तवा तुमुन ल्यप तव्यत् अनीयर प्रत्यय याद करने है । कक्षा में लिखवाए गए सभी शब्द रूप व धातु रूप याद करने है । भास्वती के पहले तीन पाठ भी याद करने है ।

(Multimedia)

1. Prepare a list of higher language showing their formation of year.
2. Suggest a suitable configuration of computer desktop /laptop before purchasing it.

Students are required to visit some offices and find the name of antivirus which is being used there