

S.F.D.A.V. Public School ,Muzaffarnagar
Holiday Homework 2018-19
Class-XI

Subject-Maths

1. Let A and B be any two set using property of sets prove that
 $(A - B) \cup B = A \cup B$
2. Write in roster form the following sets:
 - (i) $A = \{x : x^2 \leq 10, x \in \mathbb{N}\}$
 - (ii) $B = \{x : x = \frac{1}{2n-1}, 1 \leq n \leq 5\}$
 - (iii) $C = \{x : x \text{ is an integer, } -\frac{1}{2} < x < \frac{11}{2}\}$
3. If $M = \{3,4\}$ find $M \times M \times M$
4. Let $A = \{1,2,3,4,5,6\}$. Define a relations R on set A to A by $R = \{ (x,y) : y=x+1 \}$
 - (i) Depict this relation using an arrow diagram
 - (ii) Write down the domain, co-domain and range of R.
5. If $A = \{1,2,4\}$, $B = \{2,4,5\}$ and $C = \{2,5\}$ write $(A - C) \times (B - C)$
6. Solve the following equations:
 - (i) $\cos\theta + \cos 3\theta - 2\cos 2\theta = 0$
 - (ii) $\sin 2\theta + \sin 4\theta + \sin 6\theta = 0$
7. Prove that $\sin(-690^\circ) \cos(-300^\circ) + \cos(-750^\circ) \sin(-240^\circ) = 1$
8. Prove that $\sin 10^\circ \sin 30^\circ \sin 50^\circ \sin 70^\circ = 1/16$
9. Prove that $\cos 24^\circ + \cos 55^\circ + \cos 125^\circ + \cos 204^\circ + \cos 300^\circ = \frac{1}{2}$
10. Prove that $\sin 51^\circ + \cos 81^\circ = \cos 21^\circ$.
11. If $A - B$ and $A + B$ are positive acute angles, find the values of A and B from the equations :
 $\sin(A - B) = \frac{1}{2}$, $\cos(A + B) = \frac{1}{2}$
12. Prove that : $\cos 20^\circ \cos 40^\circ \cos 60^\circ \cos 80^\circ = 1/16$
13. Prove by using P.M.I. $n \in \mathbb{N}$.
$$\frac{1}{1.2} + \frac{1}{2.3} + \frac{1}{3.4} + \dots + \frac{1}{n(n+1)} = \frac{n}{n+1}$$
14. Find multiplicative inverse of $4 - 3i$.
15. Convert the complex No. $\frac{-16}{1+i\sqrt{3}}$ in polar form.
16. Find the square root of $(-7 - 24i)$
17. Find the Argument of $\frac{1}{1-i}$.
18. Find $\sin 2A$, $\cos 2A$ and $\tan 2A$ if $\sin A = \frac{4}{5}$, A lies in the second quadrant.

Subject-English

- Q1 Why there is discrimination in society between girls and boys .Write an article on it .
- Q2 Prepare a poster on full size chart paper for “SPORT CLUB” going to be started soon in your city.
- Q3 Write a letter to the editor of local daily about the climate change and how it is affecting the normal life .you are mohit / rima

Subject-Physics

- Q.1) Derive 2nd equation of motion by calculus method.

Q.2) Derive 3rd equation of motion graphically.

Q.3) The distance x of a particle moving in one dimension, under the action of a constant force is related to time t by the equation $t = \frac{x}{2} + 3$ where x is in meter and t in second. Find the displacement of the particle when its velocity is zero. Q4. Do question 3.3. , 3.4, 3.6 ,3.12 from NCERT exercise

Video Link

<https://www.youtube.com/watch?v=k42gXhQP6Jk>

Subject-Chemistry

UNIT 1

1. What is the Molarity?
2. Write the significant figures in (i) 0.0025 (ii) 200
3. Write the application of Taxol.
4. What is law of definite proportions?
5. Define mole fraction.
6. What is the concentration of $C_{12}H_{22}O_{11}$ in mol L^{-1} . Is its 20g are dissolved in enough water to make a final volume up to 2L?
7. Calculate the molarity of a solution of ethanol in water in which the mole fraction of ethanol is 0.040. If density of water is one g/cm^3 .
8. Write the definition of following:-
 - (i) Avogadro constant
 - (ii) Mole
 - (iii) Formula Mass
9. $\text{CaCO}_3 + 2\text{HCl} \rightarrow \text{CaCl}_2 + \text{CO}_2 + \text{H}_2\text{O}$
What mass of CaCO_3 is required to react completely with 25mL of 0.75M HCl.

UNIT 2

10. Explain the following :
 - (i) Photoelectric effect
 - (ii) Absorption spectrum
11. Write down the electronic configuration of the following:-
 - (i) C
 - (ii) S^{2-}
 - (iii) Fe^{3+}
 - (iv) Cr
12. What is the relationship between wavelength and the momentum
13. On the basis of Heisenberg's uncertainty principle show that electron cannot exist within the atomic nucleus.
14. The energy of an alpha particle is 6.8×10^{-18} . What will be the wavelength associated with it. $h = 6.6 \times 10^{-34} \text{ Js}$ $1 \text{ amu} = 1.67 \times 10^{-27} \text{ Kg}$?

UNIT 3

15. How does metallic character vary in a group
16. Write the IUPAC name of element which has atomic number 104.
17. What do you mean by electron gain enthalpy?
18. Define:- shielding effect, effective nuclear charge

Subject-Painting

Q1. (Draw & Colour) a poster making on save water (Size A3)

Subject-Physical Education

Q1. Make Game file and learned 1 to 5 chapter and do marked question answer.

Subject-Biology

- Q1. Collect and paste 10 leaves from your surroundings. Describe its venation and phyllotaxy. Also write to which genus it belongs to and write their complete classification.
- Q2. Take a flower that belongs to family malvaceae. Dissect it paste its all vegetative and reproductive parts.name them. Describe floral, and vegetative characters of the family.

Subject-Engineering Graphics

1. To construct a regular pentagon, length of side is 35mm.
2. To construct a regular hexagon, length of side is 30mm.
3. To inscribe a regular heptagon in a given circle, diameter of circle is 90mm.
4. To construct an Ellipse by Trammel method, major axis is 120mm and minor axis is 80mm.
5. To draw an Involute of a hexagon, sides of the hexagon is 25mm.
6. To draw an Involute of a pentagon, sides of the pentagon is 25mm.
7. To draw an Involute of a square, sides of the square is 30mm.
8. To draw an Involute of a triangle, sides of the triangle is 25mm.
9. To draw an Involute of a circle, diameter of circle is 40mm.
10. To inscribe a regular pentagon in a given circle, diameter of circle is 90mm.
11. To construct a Parabola, when the distance of the focus from the directrix is 50mm.
12. To construct a Parabola, by rectangle method, its base side is 100mm and the axis is 120mm.