RED ROSE SENIOR SECONDARY SCHOOL

HOLIDAY HOMEWORK

CLASS-X

SESSION-2022-2023

SUBJECT-MATHEMATICS

1. Chapter:1 (Real Numbers)
    - Ex.1.2 Q.No. 1 (ii), (iii), Q.No 2 (ii), Q.No.3.
    - Ex.1.3 Q.No. 2 (ii), Q.No. 3.
    - Ex.1.4 Q.No. 1 (iv),(vii)
2. Chapter: 2 (Polynomials)
    - Ex.2.1 Q.No. 1.
    - Ex.2.2 Q.No. 1 (vi), Q.No. 2 (i), (ii).
    - Ex.2.3 Q.No. 1 (ii), Q.No. 2 (i), Q.No. 3, Q.No. 4.
3. Chapter: 3 (Pair of Linear Equations in Two Variables)
    - Ex.3.1 Q.No. 2.
    - Ex.3.2 Q.No. 2 (i), Q.No. 3 (iii), Q.No. 4 (iii), Q.No. 5, Q.No. 6.
    - Ex 3.3 Q.No. 1 (v),(vi), Q.No. 3 (ii),(vi), Q.No. 2.
    - Ex.3.4 Q.No. 1(iii), Q.No. 2 (i),(iv).
    - Ex.3.5 Q.No. 1(iv), Q.No. 2(ii), Q.No. 4 (iii).
    - Ex.3.6 Q.No. 1(ii),(vii), Q.No. 2(ii).
4. Show that each of the following is a composite number:

- 5 x 11 x 13+13
- 6x5x4×3×2×1+5

5. Show that any number of the form 4^n , n belongs to N can never end with the Digit 0.
6. Given that HCF(252, 594) = 18, find LCM(252, 594).
7. The HCF of two numbers is 145 and their LCM is 2175. If one of the numbers is 725, find the other.
8. Find the maximum number of students among whom 1001 pens and 910 pencils can be distributed in such a way that each student gets the same number of pens and the same

number of pencils.

9. Express 0.254 as a fraction in simplest form.
10. Prove that √11 is irrational.
11. Show that 1/ √2is irrational.
12. Find the zeros of the polynomial $2x^2+5x-12$ and verify the relationship between its zeros and coefficients.
13. Obtain the zeros of the quadratic polynomial $\sqrt{3}x^2-8x+4\sqrt{3}$ and verify the relation between its zeros and coefficients.
14. If the product of the zeros of the polynomial (ax^2-6x-6) is 4, find the value of a.
15. Find the quadratic polynomial whose zeros are 2 and -6. Verify the relation between the coefficients and the zeros of the polynomial.
16. Find the quadratic polynomial, sum of whose zeros is 8 and their product is 12. Hence, find the zeros of the polynomial.
17. If (x + a) is a factor of the polynomial $2x^2 + 2ax + 5x + 10$, find the value of a.
18. Divide $5x^3-13x^2+21x-14$ by (3-2x+x) and verify the division Algorithm.
19. What real number should be subtracted from the polynomial $(3x^3+10x^2-14x+9)$ so that (3x-2) divides it exactly?
20. If the polynomial $(x^4+2x^3+8x^2+12x+18)$ is divided by another polynomial (x+5), the remainder comes out to be (px+q). Find the values of p and q.
21. Obtain all zeros of $(3x-15x^3+13x^2+25x-30)$, if two of its zeros are √5/3 and -√5/3.
22. Find all the zeros of $(2x^4-3x^3-5x^2+9x-3)$, it being given that two of its zeros are √3 and -√3.
23. If the sum of the zeros of the quadratic polynomial kx^2-3x+5 is 1, write the value of k.
24. If a and b are the zeros of the polynomial $f(x)=x^2-5x+k$ such that a-b=1, find the value of k. (where a is alpha and b is beta.)
25. If a and b are the zeros of the polynomial $f(x) = 6x^2+x-2$, find the (a/b+b/a). (a is alpha and b is beta).
26. If a and b are the zeros of the polynomial $f(x) = 5x^2-7x+1$, find the value of (1/a+1/b), a is alpha and b is beta.
27. Solve the following systems of equations graphically: 3x + 2y = 12, 5x-2y = 4.
28. Solve the following system of equation graphically and find the vertices and area of the triangle formed by these lines and the x-axis: 2x-3y+4=0, x+2y-5=0.
29. Solve the following given system of equations graphically and find the vertices and area of the triangle formed by these lines and the y-axis: 4x-y-4-0, 3x +2y-14 = 0.

30. Show graphically that the following given systems of equations has infinitely many solutions: 22x+3y = 6, 4x+6y= 12.

31. Show graphically that the following given systems of equations is inconsistent, i.e., has no solution: 2x+y=6, 6x+3y=20.

32. Solve for x and y:

    i. X/3+y/4=11 and 5x/6-y/3=-7.

    ii. 0.4x+0.3y=1.7 and 0.7x-0.2y=0.8.

    iii. 3/x-1/y+9=0 and 2/x+3/y=5.

    iv. 5/(x+y)-2/(x-y)=-1 and 15/(x+y)+7(x-y)=10.

    v. x+y=a+b and ax-by=a^2-b^2.

    vi. 217x+131y=913 and 131x+217y=827.

33. Find the value of k for which the following pair of linear equations has infinitely many solutions: 2x-3y=7, (k+1)x+(1-2k)y=(5k-4).

34. Find the value of k for which the system of equations x+2y=5, 3x+ky-15-0 has no solution.

35. Find the values of k for which the system of equations Kx-y=2, 6x-2y=3 has (i) a unique solution, (ii) no solution. (iii) Is there a value of k for which the given system has infinitely many solutions?

36. Taxi charges in a city consist of fixed charges and the remaining depending upon the distance travelled in kilometers. If a person travels 60 km, he pays rupees 960, and for travelling 80 km, he pays rupees 1260. Find the fixed charges and the rate per kilometer

37. The monthly incomes of A and B are in the ratio 8:7 and their expenditures are in the ratio 19:16. If each saves 5000 per month, find the monthly income of each.

38. The sum of a two-digit number and the number obtained by reversing the order of its digits is 121, and the two digits differ by 3. Find the Number.

39. The sum of two numbers is 16 and the sum of their reciprocals is 1/3. Find the numbers.

40. 2 men and 5 boys can finish a piece of work in 4 days, while 3 men and 6 boys can finish it in 3 days. Find the time taken by one man alone to finish the work and that taken by one boy alone to finish the work.

41. The area of a rectangle gets reduced by 67 square metres, when its length is increased by 3 m and breadth is decreased by 4 m. If the length is reduced by 1 m and breadth is increased by 4 m, the area is increased by 89 square metres. Find the dimensions of the rectangle.

42. Two years ago, a man was five times as old as his son. Two years later, his age will be 8 more than three times the age of his son. Find their present ages.

43. The larger of the two supplementary angles exceeds the smaller by 18º. Find them.

44. Abdul travelled 300 km by train and 200 km by taxi taking 5 hours 30 minutes. But, if he travels 260 km by train and 240 km by taxi, he takes 6 minutes longer. Find the speed of the train and that of the taxi.

45. Lab Manual work.

Subject - Science

Make a hand written project on any one of the following topics :

1. Conservation and judicious use of natural resources
2. Forest and Wildlife
3. Coal and Petroleum Conservation
4. Examples of people's participation for conservation of natural resources
5. Big dams: Advantages, Limitations, Alternatives if any
6. Water harvesting
7. Sustainability of natural resources

Note:- The project has to be made on A4 sheets containing minimum of 8 and maximum 10 pages,properly stapled and kept in a folder (clear bag).

Note:- The following experiments has to written in science lab manual under headings:-

1.Aim 2.Materials (Apparatus) used 3. Result

LISTOF EXPERIMENTS

1.A. Finding the pH of the following samples by using pH paper/universal indicator:

(i)Dilute Hydrochloric Acid

(ii) Dilute NaOH solution

(iii) Dilute Ethanoic Acid solution

(iv) Lemon juice

(v) Water

(vi) Dilute Hydrogen Carbonate solution

B. Studying the properties of acids and bases (HCl & NaOH) on the basis of their reaction with:

a) Litmus solution (Blue/Red)

b) Zinc metal

c) Solid sodium carbonate

2.Performing and observing the following reactions and classifying them into:

A. Combination reaction

B. Decomposition reaction

C. Displacement reaction

D. Double displacement reaction

(i) Action of water on quicklime

(ii) Action of heat on ferrous sulphate crystals

(iii) Iron nails kept in copper sulphate solution

(iv) Reaction between sodium sulphate and barium chloride solutions

3.Observing the action of Zn, Fe, Cu and Al metals on the following salt solutions:

i) $ZnSO_4(aq)$

ii) $FeSO_4(aq)$

iii) $CuSO_4(aq)$

iv) $Al_2(SO_4)_3(aq)$

Arranging Zn, Fe, Cu and Al (metals) in the decreasing order of reactivity based on the

above result.

4.Studying the dependence of potential difference (V) across a resistor on the current (I) passing

through it and determine its resistance. Also plotting a graph between V and I. Unit-IV

5.Determination of the equivalent resistance of two resistors when connected in series and parallel.

6.Preparing a temporary mount of a leaf peel to show stomata.

7. Experimentally show that carbon dioxide is given out during respiration.

8. Study of the following properties of acetic acid (ethanoic acid):

i) Odour

ii) solubility in water

iii) effect on litmus

iv) reaction with Sodium Hydrogen Carbonate

9. Study of the comparative cleaning capacity of a sample of soap in soft and hard water.

10. Determination of the focal length of:

i) Concave mirror

ii) Convex lens

by obtaining the image of a distant object.

11. Tracing the path of a ray of light passing through a rectangular glass slab for different angles of incidence. Measure the angle of incidence, angle of refraction, angle of emergence and interpret the result.

12.Studying (a) binary fission in Amoeba, and (b) budding in yeast and Hydra with the help ofprepared slides.

13. Tracing the path of the rays of light through a glass prism.

14.Identification of the different parts of an embryo of a dicot seed (Pea, gram or red kidney bean).

Physics

Short Answer Type-I Questions

1. Explain why a concave mirror is also known as converging mirror.

2. Define focal length and radius of curvature for a spherical mirror.

3. Define a spherical mirror with the help of a diagram.

Short Answer Type-II Questions

1. Distinguish between a concave and a convex mirror.

2. Establish the relationship between the focal length and the radius of curvature.

3. Write the procedure used to find the focal length of a concave mirror.

4. Distinguish between the focus of a concave mirror and convex mirror.

5. Distinguish between a real image and a virtual image.

Numerical Problems

1. If the radius of curvature of a concave mirror is 36 cm, what is its focal length?

2. The radius of curvature of a spherical mirror is 90 cm. What is its focal length?

3. A person moves 20 cm towards a plane mirror with a speed of 25 cm/s. What is the relative velocity of the image with respect to the person?

4. Solve these numericals.

a. The radius of curvature of a spherical mirror is 30 cm. What is its focal length?

b. If the focal length of a concave mirror is 20 cm, what is the radius of curvature?

c. If the sum of focal length and radius of curvature is 30 cm, what is the focal length of that spherical mirror?

Chemistry

Chemical equations and reactions

Write balanced skeletal equations for the following:-

1. Zinc carbonate → zinc oxide + carbon dioxide. Carbon dioxide gas is formed in this reaction.

2. Sodium Chloride + Silver nitrate → Silver chloride + Sodium nitrate A white precipitate (silver chloride) is formed in the above chemical reaction.

3. Sodium sulphite + hydrochloric acid → sodium chloride + water + sulphur dioxide Sulphur dioxide gas is formed in this reaction.

4. Sulphur dioxide + oxygen ⇌ Sulphur trioxide

5. Lead nitrate + ammonium hydroxide → ammonium nitrate + lead hydroxide Lead hydroxide is

a chalky white precipitate formed in this reaction.

6. Zinc + dilute hydrochloric acid → zinc chloride + hydrogen

7. Copper oxide + Sulphuric acid → copper sulphate + water

8. Zinc + Sulphur → zinc sulphide

9. Zinc carbonate → zinc oxide + carbon dioxide

10. Ammonia+Hydrogen chloride → ammonium chloride

11. Zinc Sulphide + Oxygen gas → Zinc oxide solid + Sulphur dioxide gas

12. Silver nitrate solution + Sodium chloride solution → Silver chloride precipitate + Sodium nitrate solution

13. Sulphur solid + Concentrated nitric acid → Sulphuric acid + Nitrogen dioxide gas + Water

14. Barium chloride Solution + Potassium sulphate Solution → Barium sulphate Precipitate + Potassium chloride solution

15.Silver nitrate on heating→ silver metal + nitrogen dioxide gas + Oxygen gas.

16. Aluminium hydroxide + Nitric acid → Aluminium nitrate + Water.

17. Zinc and lead (II) nitrate react to form zinc nitrate and lead.

18. Aluminum bromide and chlorine gas react to form aluminum chloride and bromine gas.

19. Sodium phosphate and calcium chloride react to form calcium phosphate and sodium chloride.

20. Potassium metal and chlorine gas combine to form potassium chloride.

21.Aluminum and hydrochloric acid react to form aluminum chloride and hydrogen gas.

22. Calcium hydroxide and phosphoric acid react to form calcium phosphate and water.

23. Copper and sulfuric acid react to form copper (II) sulfate and water and sulfur dioxide.

24. Hydrogen gas and nitrogen monoxide react to form water and nitrogen gas.

25. Zinc Sulphide + Oxygen gas → Zinc oxide solid + Sulphur dioxide gas

26. Silver nitrate solution + Sodium chloride solution → Silver chloride precipitate + Sodium nitrate solution

27. Sulphur solid + Concentrated nitric acid → Sulphuric acid + Nitrogen dioxide gas + Water

28. Barium chloride Solution + Potassium sulphate Solution → Barium sulphate Precipitate + Potassium chloride solution

29. Silver nitrate on heating→ silver metal + nitrogen dioxide gas + Oxygen gas.

30. Aluminium hydroxide + Nitric acid → Aluminium nitrate + Water.

Subject-Hindi

(1) ऊर्जा संरक्षण पर दो छात्रों के मध्य संवाद लिखिए।

(2) कोरोना काल में घर पर रह रहेअपनें अवसादग्रस्त मित्र को सकारात्मक सोच के लिए एक पत्र लिखिए ।

(3) नये कूलर (coolwin)के लिए 25 से 30 एक विज्ञापन तैयार कीजिए।

Subject: Social Science

Project File

Topic:

Consumer Awareness

OR

Social Issues

OR

Sustainable Development

Choose any One topic from above for your Project File.

The project should be made in interleaf punch papers. The length of the project should not be less than 30 pages. Pictures related to the topic should be pasted 5 Mandatory Pages like:

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Map Work

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A.Calcutta (sep 1920)

B.Nagpur (Dec 1920)

Madras (1927)

2.Important Centres of Indian Movement

Champarn (Bihar)Movement of Indigo Planters

B.Kheda(Gujrat) Peasant Satyagrah

C.Ahmedabad(Gujrat) Cotton mill workers

D.Amritsar(Punjab) JallianwallaBagh Incident

E.Chauri Chaura(Up) Calling off Non-Coperation Movement

F.Dandi (Gujrat) Civil Disobedience Movement

Geography:

Resource And Development

1.Major Soil types

Alluvial,Black,Arid,Red &Yellow

2.Water Resources

1.Dams

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b.Bhakra Nangal

C.Tehri

Rana Pratap Sagar

e.Sardar Sarovar