Viswabharathi wisewoods

Dear Parent /Guardian

Hope everything is fine at your end and the same is herein with the school. Second term of your ward completed smoothly with the co-operation of all associated with wisewoods.

Academic & Advanced Exams are a part of curriculum which was conducted as per the calendar and marks SMS also were being sent to your registered mobile numbers.

We are conducting Detailed Assessment Exam to your ward in the subjects English, Mathematics & Science, as per the plan.

We are glad to inform you that our wisewoods students participated in Inter School Science Exhibition and won laurels to the school in both Junior & Senior category.

Annual sports meet was held on 30th **December 2019**, magnificantly and we are glad to inform that our Wisewoods UTSAV falls on 16th February, 2020 (Sunday) to encompass, scholastic and Co – scholastic exhibits apart from music, theatre and visual arts from our students.

As you are aware that the learning is endless and is a continuous process, so to keep intact with our young minds(i.e. your wards) my teachers have designed **productive works** in English, Mathematics, Science and Social Science which have to be completed by the students and submit to the concerned teacher on the re-opening day.

Many more new things are in the offing in future.

With Best Wishes.

SANJAY BHATIA

Principal

Vacation Work for Grade IX

Note:

- Use only A4 sheets for writing information with borders, for each subject separately.
- Each student must use atleast 5 to 6 A4 sheets apart from Index page and Conclusion page.

MATHEMATICS

NUMBER SYSTEM:-

1. Express $1.\overline{27}$ in the form of $\frac{p}{q}$ where p, q are integers and q≠0
2. Represent the following on the number line: (i) $\sqrt{5}$
3. Visualize the following numbers on the number line: (i) 5.3778 (ii) $2.\overline{46}$ (upto 4 decimal places)
4. Find: (a) $64^{\frac{1}{6}}$ (b) $243^{\frac{2}{5}}$ (c) $625^{\frac{-1}{4}}$ (d) $128^{\frac{1}{7}}$

POLYNOMIALS:-

5. Factorize: $6x^2+17x+5$
6. Without actually calculating the cubes, find the value of each of the following: (i) $(-12)^3 + (7)^3 + (5)^3$ (ii) $(99)^3$
7. What are the possible expressions for the dimensions of the cuboids whose volumes are given below: (i) $3x^2 - 12x$ (ii) $12ky^2 + 8ky - 20k$
8. If x + y + z = 0 then prove that $x^3 + y^3 + z^3 = 3xyz$

COORDINATE GEOMETRY:

9. In which quadrant or on which axis do the points (-3, -1) (-3, 4) (-1, 0) and (0,3) lie?
10. Find the coordinates of the point:
    (i) Which lies on x-axis and y-axis , both
    (ii) Whose abscissa is 5 and ordinate is 6
    (iii) Whose ordinate is 6 and which lies on y-axis
    (iv) Whose ordinate is 3 and abscissa is -7.
    (v) Whose abscissa is 3 and which lies on x-axis.
    (vi) Whose abscissa is 4 and ordinate is 4
11. Plot the points (0, 0) (0, 3) (4, 3) (4, 0) in graph sheet. Join the points with straight lines to make a rectangle. Find the area of the rectangle.

LINEAR EQUATIONS IN TWO VARIABLES:

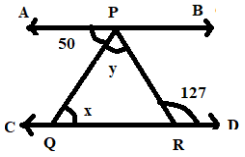
12. If the point (2k – 3, k + 2) lies on the graph of equation 2x+ 3y + 15 = 0, find the value of k.
13. Write three solutions for each of the following equations: (i) 2x + y = 7 (ii) x = 4y
14. Give the geometric representation of 2x + 9 = 0 as an equation: (i) the number line (ii) the Cartesian plane.
15. The taxi fare in a city is as follows: For the first kilometer, The fare is Rs.8 and for the subsequent distance it is Rs. 5 per km. Taking the distance covered as x km and total fare as Rs. y. Write a linear equation for this information, and draw its graph.

INTRODUCTION TO EUCLID'S GEOMETRY:-

16. State Euclid's fifth postulate.
17. If AC = BD then prove that AB = CD
18. Write any three (i) Euclid's Postulates and (ii) Euclid's Axioms.

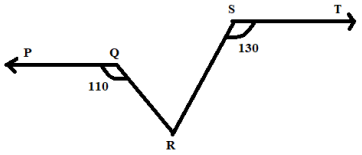
LINES AND ANGLES:-

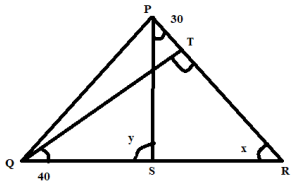
19. If AB // CD, $\angle APQ = 50°$ and $\angle PRD = 127°$. Find x and y from the given figure.



20. In the given figure if $QT \perp PR, \angle TQR = 40°$ and $\angle SPR = 30°$, find x and y.

21. If $PQ // ST, \angle PQR = 110°$ and $\angle RST = 130°$, find $\angle QRS$



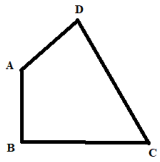


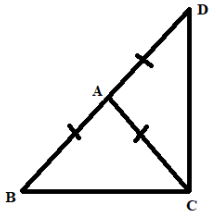
TRIANGLES:-

22. In an Isosceles Triangle ABC, with AB = AC, the bisectors of $\angle B$ and $\angle C$ intersect each other at O. Show that (i) OB = OC (ii) AO bisects $\angle A$.

23. ΔABC is an Isosceles triangle in which AB = AC. Side BA is produced to D such that AD = AB Then show that $\angle BCD$ is a right angle.

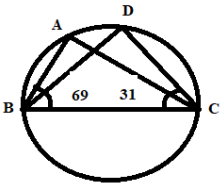
24. AB and CD are respectively the smallest and longest of a quadrilateral ABCD show that $\angle A > \angle C and \angle B > \angle D$





CIRCLES:-

25. In the given figure $\angle ABC = 69°, \angle ACB = 31°$, find $\angle BDC$



26. Two circles of radii 5cm and 3cmintersect at two points and the distance between their centers is 4cm. Find the length of the common chord.

27. A circular park of radius 20m is situated in a colony. Three boys Ankur, Syed and David are sitting at equal distance on its boundary each having a toy telephone in his hands to talk each other. Find the length of the string of each phone.

CONSTRUCTIONS:-

28. Construct the angles of the following measurements: (i) 30° (ii) $22\frac{1}{2}°$ (iii) 15°

29. Construct a triangle ABC in which BC = 7 cm, $\angle B = 75°$ and AB + AC = 13 cm.

30. Construct a triangle XYZ in which $\angle Y = 30°, \angle Z = 90°$ and XY + YZ + ZX = 11cm

HERON'S FORMULA:-

31. Find the area of a triangle, two sides of which are 8cm and 11cm and the perimeter is 32cm.

32. Sides of a triangle are in the ratio of 12:17:25 and its perimeter is 540cm. Find its area.

33. A field is in the shape of a trapezium whose parallel sides are 25m and 10m. The non-parallel sides are 14m and13m. Find the area of the field.

SURFACE AREA AND VOLUMES:-

34. Find the radius of a sphere whose surface area is $154cm^2$.

35. A solid cube of side 12cm is cut into eight cubes of equal volume. What will be the side of the new cube? Also, find the ratio between their surface areas.

36. A Dome of building is in the form of a hemisphere. From inside, it was white-washed at the cost of Rs. 498.96. If the cost of white-washing is Rs.2.00 per square metre, find the (i) inside surface area of the dome (ii) Volume of the air inside the dome.

37. A heap of wheat is in the form of a cone whose diameter is 10.5m and height is 3m. Find its Volume. The heap is to be covered by canvas to protect it from rain. Find the area of the canvas required.

STATISTICS:-

38. The blood groups of 36 students of IX class are recorded as follows: A O A O A B O A B A B O B O B O O A B O B AB O A O O O A AB O A B O A O B. Represent the data in the form of a frequency distribution table. Which is the most common and which is the rarest blood group among these students?

39. Consider a small unit of a factory where there are 5 employees: a supervisor and four laborers. The laborers draw a salary of Rs. 5,000 per month each while the supervisor gets Rs. 15,000 per month. Calculate the mean, median and mode of the salaries of this unit of the factory.

40. The length of 40 leaves of a plant are measured correct to one millimeter, and the obtained data is represented in the following table:

Length(in mm)	118-126	127-135	136-144	145-153	154-162	163-171	172-180
No. of Leaves	3	5	9	12	5	4	2

(i) Draw a histogram to represent the given data.

(ii) Is there any other suitable graphical representation for the same data?

(iii) Is it correct to conclude that the maximum number of leaves is 153mm long? Why?

41. The following gives the distribution of students of two sections according to the marks obtained by them:

Section A		Section B	
Marks	Frequency	Marks	Frequency
0 – 10	3	0 – 10	5
10 – 20	9	10 – 20	19
20 – 30	17	20 – 30	15
30 – 40	12	30 – 40	10
40 - 50	9	40 - 50	1

Represent the marks of the students of both the sections on the same graph by two frequency polygons. From the two polygons compare the performance of the two sections.

PROBABILITY:-

42. In a cricket match, a batswoman hits a boundary 6 times out of 30 balls she plays. Find the probability that she did not hit a boundary.

43. Fifty seeds were selected at random from each of 5 bags of seeds, and were kept under standardized conditions favorable to germination. After 20 days, the number of seeds which had germinated in each condition were counted and recorded as follows:

Bag	1	2	3	4	5
ber of seeds germinated	40	48	42	39	41

What is the probability of germination of?

(i) More than 40 seeds in a bag?

(ii) 49 seeds in a bag?

(iii) More than 35 seeds in a bag?

44. A spinner was spun 1000 times and the frequency of outcomes was recorded as given table:

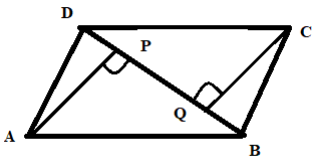
Out come	Red	Orange	Purple	Yellow	Green
Frequency	185	195	210	206	204

Find (a) List the possible outcomes that you can see in the spinner. (b) Compute the probability of each outcome. (c) Find the ratio of each outcome to the total number of times that the spinner spun.

QUADRILATERALS:-

45. State and prove Midpoint Theorem.

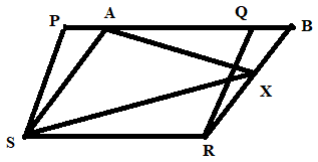
46. The angles of quadrilateral are in the ratio 3:5:9:13. Find all the angles of the quadrilateral.



47. Write any four properties of Parallelogram.

48. ABCD is a parallelogram and Ap and CQ are perpendiculars from vertices A and C on diagonal BD. Show that (i) $\Delta APB \cong \Delta CQD$ (ii) AP = CQ

AREAS OF PARALLELOGRAMS AND TRIANGLES:-



49. In ΔABC, E is the midpoint of median AD. Show that ar(BED) = $\frac{1}{4}$ ar(ABC).

50. PQRS and ABRS are parallelograms and X is any point on side BR. Show that (i) ar(PQRS) = ar(ABRS) (ii) ar(AXS) = $\frac{1}{2}$ ar(PQRS)

PHYSICS

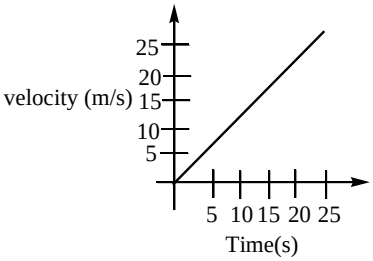
Chapters:-

I. Motion:

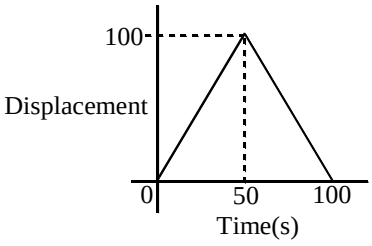
1. An object is dropped from rest at a height of 150m and simultaneously another object is dropped from rest at a height of 100m. What is the difference in their heights after 2s if both the objects drop with same accelerations?
2. Using following data draw, time – displacement graph for a moving body. (Draw on paper only)

Time	0	2	4	6	8	10	12	14	16
Displacement	0	2	4	4	4	6	4	2	0

3. The velocity – time graph shows the motion of a cyclist. Find (i) its acceleration (ii) Its velocity (iii) The distance covered by cyclist in 15 seconds.



4. A girl walks along a straight path to drop a letter in the letterbox and comes back to her initial position. Her displacement – time graph is shown in figure. Plot velocity (vs) time graph for the same.



II. Laws of motion:

1. There are three solids made up of aluminium, steel & wood of same shape & same volume, which of them would have highest inertia.
2. Define all 3 laws of motion with examples.
3. What is momentum? Write its SI units.

4. A girl of mass 40kg jumps with a horizontal velocity of 5m/s onto a stationary cart with frictionless wheels. The mass of the cart is 3kg. What is her velocity as the cart starts moving?

III. Gravitation:

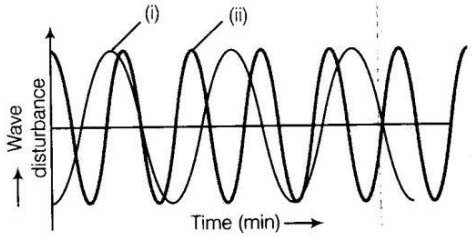
1. Suppose gravity of earth suddenly becomes zero, then in which direction will the moon begin to move if no other celestial body affects it?
2. Define (i) keplers laws (ii)Universal law of gravitation.
3. An object weighs 10N when measured on the surface of the earth. What would be its weight when measured on the surface of the moon.
4. Relative density of silver is 10.8. Then density of water is $10^3 kg/m^3$. What is the density of silver in S.I units.

IV. Work & Energy:

1. The power of a motor pump is 2kw. How much water per minute the pump can raise to a height of 10m. (take $g = 10m/s^2$)
2. If it possible that an object is it in the state of accelerated motion due to external force acting on it, but no work is being done by the force. Explain with an example.
3. If an electric iron of 1200W is used for 30 minutes everyday, find electrical energy consumed in the month of April.
4. Write the relation between Joules & commercial unit of energy.

V. Sound:

1. Why is the ceiling and wall behind the stage of good conference halls or concert halls made curved?
2. Establish the relationship between speed of sound, its wavelength & frequency. If velocity of sound in air is 340 m/s. Calculate
   (i) wavelength when frequency is 256Hz.
   (ii) Frequency when wavelength is 0.85m.
3. Which of the following two graphs (i) & (ii) representing the human voice is likely to be the male voice. Give reason.



4. Sound produced by a thunderstorm is heard 10s after the lightning is seen. Calculate the approximate distance of the cloud. (Given speed of sound = $340ms^{-1}$)

CHEMISTRY

Chapters :

I. Matter in our Surroundings

1. What are the characteristics of the particles of matter?
2. Give reasons :
   a) A gas fills completely the vessel in which it is kept.
   b) A gas exerts pressure on the walls of the container.
   c) A wooden table should be called a solid.
   d) We can easily move our hand in air but to do the same through a solid block of wood, we need a karate expert.

3. a) Convert the following temperatures to Celsius scale
   a) 300k b) 573k
   b) What is the physical state of water at a) 250ºC b) 100ºC?
4. Why does our palm feel cold when we put some acetone (or) petrol (or) perfume on it?
5. a) Arrange the following substances in increasing order of forces of attraction between the particles – water, sugar, oxygen.
   b) Give two reasons to justify :
   i) Water at room temperature is a liquid.
   ii) An iron almirah is a solid at room temperature.

II. Is matter Around us pure

1. List the points of differences between homogeneous and heterogeneous mixtures?
2. How are Sol, solution & suspension different from each other?
3. Which separation technique will you apply for the separation of the following?
   a) Sodium chloride from its solution in water.
   b) Ammonium chloride from a mixture containing sodium chloride & Ammonium chloride.
   c) Small pieces of metal in the engine oil of a car.
   d) Butter from curd e) oil from water f) tea leaves from tea.
   g) Fine mud particles suspended in water.
4. a) How would you confirm that a colourless liquid given to you is pure water?
   b) Which of the following will show "Tyndall effect"?
   i) Salt solution ii) Milk iii) Copper sulphate solution
   iv) Starch solution
   c) Classify the following into elements, compounds & mixtures
   i) Sodium ii) Soil iii) Sugar solution iv) Silver
   v) Calcium carbonate vi) Soap vii) Air viii) Coal
   ix) tin x) Methane
5. a) To make a saturated solution, 36g of sodium chloride is dissolved in 100g of H_2O at 293K. Find its concentration at this temperature.
   b) If 2ml of acetone is present in 45ml of its aqueous solution, calculate the concentration of this solution.

III. Atoms & Molecules

1. In a reaction 5.3g of sodium carbonate reacted with 6g of ethanoic acid. The products were 2.2g of carbon dioxide, 0.9g of water and 8.2g of sodium ethanoate. Show that these observations are in agreement with the law of conservation of mass.
2. A 0.24g of sample of compound of oxygen and boron was found by analysis to contain 0.096g of Boron & 0.144g of oxygen. Calculate the percentage composition of the compound by weight.
3. Write down the formulae of
   i) sodium oxide ii) aluminium chloride iii) sodium sulphide
   iv) magnesium hydroxide v) Aluminium sulphate
   vi) calcium chloride vi) potassium sulphate viii) potassium nitrate
   ix) Calcium carbonate x) sodium hydroxide
4. Calculate the molecular masses of H_2, O_2, Cl_2, CO_2, CH_4, C_2H_6, C_2H_4, NH_3, CH_3OH, NaOH, $Mg(OH)_2$, $CaCO_3$.
5. i) Convert into moles.
   a) 12g of oxygen gas b) 20g of H_2O c) 22g of CO_2
   ii) What is the mass of a) 0.2 mole of oxygen atoms
   b) 0.5 moles of H_2O molecules.

IV. Structure of Atom:

1. a) Describe Thomson's model of the atom. Which subatomic particle was not present in Thomson's model of the atom.
   b) The mass number of an element is 18. It contains 7 electrons. What is the number of protons, neutrons in it? What is the atomic number of the element?
2. a) What are cathode rays? What is the nature of charge on cathode rays?
   b) Explain how, cathode rays are formed from the gas taken in the discharge tube.
   c) What conclusion is obtained from the fact that all the gases form cathode rays.
3. a) Describe the Rutherford's model of an atom. State one drawback of Rutherford's model of the atom.
   b) Describe Bohr's model of the atom. How did Neils Bohr explain the stability of atom?
4. a) What are valence electrons? Where are valence electrons situated in an atom?
   b) Define valency of an element. What valency will be shown by an element having atomic number 14?
5. Definitions of Isotopes, Isobars, Radioactive isotopes with examples, radioactive Isotopes – Applications.

BIOLOGY

1. Describe structure of following cell organelles
   a) Nucleus b) Chloroplast iii) Mitochondria
2. Functions of cell organelles.
3. Differences between a) Plant cell & Animal cell b) Prokaryotic cell & Eukaryotic cell
4. Types of plastids & Functions
5. Diagram of plantcell & Animal cell.
6. Give reason – a) Lysosomes are suicidal bags b) Mitochondria power house of cell
7. Define Meristematic tissue, Types, Location, Functions
8. Parenchyma tissue. Description and Types.
9. Difference between xylem & Phloem.
10. Epithelial tissues – Types, Location, Functions.
11. Muscle tissue types differences
12. Neuron description and diagram.
13. Adipose tissue, Tendon, Ligament, Cartilage
14. Cropping patterns
15. Difference between Infective and Non infective diseases
16. General characters of Platyhelminthes; Nematoda, Aves, Reptilia.
17. Discuss about Cattle farming and poultry.
18. Composite fish culture.
19. Difference between Monocot and Dicot.
20. Differences between Acute and Chronic diseases.

SOCIAL SCIENCE

Answer the following questions:

1. Who was Frederic Sorrieu and what was his dream?
2. What steps did French Revolutionaries take to create a sense of collective identity among French people?
3. Describe the powers of the President?
4. What was the Impact of Trenty of Vienna (1815) on European people? Write any three points?
5. Explain the term of conservation. Explain with special reference to Europe?

6. "The Decade of 1830 had brought great economic hard ship in Eupore" support the statement with arguments.
7. How did nationalism develop through culture in Europe? Explain?
8. What do you mean by Aristocracy and what were the common Features of this?
9. Who was Ernst Renan? How did he define "The nation"?
10. What was the zollverin? What were the objectives of it?
11. When did Industrialization begin in England?
12. Describe the powers of prime minister?
13. Which was the measuring the unit of cloth in Germany?
14. During the middle of the 19^{th} century, Italy was divided in to how many states?
15. Who was the first prime minister of Italy?
16. What was the Mandal Commission? Explain?
17. What does 'absolutist' mean?
18. Explain the powers of Judiciary?
19. Analyse the measure (or) practice which created a sense of collective identity amongst the French people.
20. Explain the revolutionary principles in corporated by Napolean in the administration of French during his reign?

(OR)

Explain any four provisions of Napolean civil code, 1804.

21. Explain liberalism in political and economic fields prevailing in Europe in the 19^{th} century.

(OR)

Explain the ideas associated with liberalism in early 19^{th} century Europe.

22. Describe the importance of out comes of elections in India.

(OR)

One final test of the free and fairness of election line in the out come itself "Justify the statement with the help of the outcomes of India's elections.

23. Describe any three functions of the election commission of India.
24. What was the role of Nelson Mandela in Independence of south Africa?
25. Why do we need a constitution? Explain.
26. Describe the features of Indian constitution.
27. Difference between general elections and by – elections.
28. Why do we need rights in a democracy? Explain any one of the fundamental rights.
29. Define poverty and how the poverty line is estimated in India? Mention a few points.
30. Describe current government strategy of poverty allevation.
31. What are the functions of government?

(OR)

Describe the need of political institution in India?

32. When is a person considered poor?
33. Name four categories of people who are vulnerable to poverty.
34. When was the NREGA Act passed?
35. Which agency conducts the periodicals sample surveys for estimating the poverty line in India?
36. What is the average number of calories required per person per day in rural area of India?
37. When does a bill become a law.
38. Explain three impact of poverty in India?
39. What is meant by office memorandum.
40. Why were the poverty allevation programmed not successful in most parts of India.

41. Describe global poverty trends?
42. Give an account of Inter state disparities of poverty in India.
43. Discuss the major reasons for poverty in India.
44. Write a note on any five programmes that have been developed for eradication of poverty in India.
45. Why do we need parliament?
46. Distinguish between Locksabha and Rajya Sabha?
47. Distinguish between political executive and permanent executive.
48. Explain the council of Ministers?
49. Who is current president and vice president of India?
50. Who was the first and present prime minister of India?