H.C.J. ACADEMY
(Affiliated to ICSE/ISC (10+2) Board, New Delhi)
Janaura, Deokali Bypass Road, Ayodhya 224001
Summer Vacation Homework 2025-26

Class- 10th **Date:- 31-May-2025**

English Language

Form Roll no. 1 to 10.

(1). As we mature , our attitudes often change, and we learn to view things defiantly. think about an important change in your attitude toward a person, a group of people, or a set of ideas, values or traditions. narrate your experience and explain why the change has taken place.

From Roll no. 11 to 20.

(2). Loyalty is an important quality in a friend. Write an essay about a friend who has shown loyalty to you. explain why you consider loyalty to be important. describe the circumstances that led your friend to show loyalty & how your friends loyalty made you feel.

From Roll no. 21 to 30.

(3). 'Test scores are a good indication of a school's competency'. Agree either for or against the given statement

English –Literature

1. What do you know about Portia in Julius Caesar? Write about her heroic qualities.
2. What do you know about Julius Caesar? Why was he murdered? Who paid main role in his murder?

Hindi

1. 'दूर के ढ़ोल सुहावने' उक्ति को आधार बनाकर एक मौलिक कहानी लिखिए।
2. 'अवकाश के समय आप सपरिवार किसी पहाड़ी यात्रा पर घूमने गये, वहाँ का प्राकृतिक दृश्य बड़ा मोहक है, भीड़ अधिक होने के कारण कुछ समस्याओ का भी सामना करना पड़ा' – वर्णन करते हुए अपना अनुभव लिखिए।

Maths (Do all the question in fair copy)

Q.1- Prove that $\frac{tan\theta}{1-cat\theta} + \frac{cat\theta}{1-tan\theta}$ = 1+ secθ cosece θ

Q.2- if 1+$sin^2\theta = 3sin\theta, prove$ that tan$\theta = 1\ or\ \frac{1}{2}$

Q.3- $sec^6A - tan^6A = 1 + 3tan^2A + 3tan^4A$

Q.4- A pole of Height 5m is fixed on the top of a tower. the angle of elevation of the top of the pole as observed from a point A on the ground is 60° and th angle of depression of the point A from top of tower is 45°. find Height of tower.

Q.5- A Box contains 17 cards numbered 1, 2, 3,----------17 and are mixed thoroughly. A card is drawn at random from box. Find probability that number on card is (i) odd (ii) even (iii) prime (iv) divisible by 3 (v) divisible by 3 and 2.

Q.6- Solve 3x-5 $\leq 6x + 4 < 11 + x$, when-

(i) x ∈ w (ii) x ∈ z (iii) x ∈ N

Q.7- Solve : $\frac{1}{x+6} + \frac{1}{x-10} = \frac{3}{x-4}$

Q.8- Find value of m for which quadratic equation has equal roots.

(i) (3m+1) x^2+2 (m+1) x+m=0

(ii) x^2 + 2(m-1) x+ (m+5) =0

Q.9- Using properties solve for x.

(i) $\frac{\sqrt{1+x+\sqrt{1-x}}}{\sqrt{1+x-\sqrt{1-x}}} = \frac{a}{b}$ (ii) $\frac{2x+\sqrt{4x^2}}{2x-\sqrt{4x^2 1}}$ =4

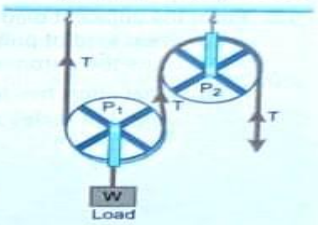
Q.10- If $ax^3 + 3x^2 + bx - 3$ has a factor (2x+3) and leaves remainder -3 when divided by (x+2) find the values of a and b. Factorise the given expression.

Physics

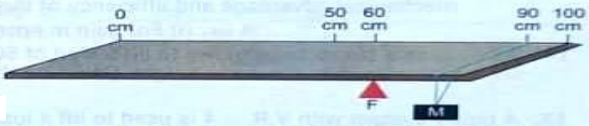
(Do solve all question in fair copy)

Numericals

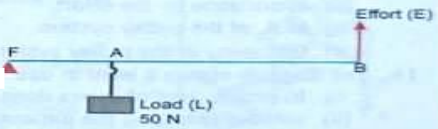
1. Give two reasons why the efficiency of a single movable pulley system is not 100%.
2. The radius of the driving wheel of a set of gears is 18 cm. It has 100 teeth and rotates at a speed of 30 rpm. The driven wheel rotates at a speed of 150 rpm.
   Calculate (i) the gear ratio (ii) the number of teeth on the driven wheel and (iii) radius of the driven wheel.
3. The below figure shows the combination of a movable pulley P_1 with a fixed pulley P_2 used for lifting up a load W.
   (i) State the function of the fixed pulley P_2.
   (ii) If the free end of the string moves though a distance x, find the distance by which the load W is raised.
   (iii) Calculate the force to be applied at C to just raise the load $W = 20$ kgf, neglecting the weight of the pulley P_1 and friction.



4. A pulley system has a velocity ratio of 4 and efficiency of 90%. Calculate
   (i) the mechanical advantage of the system.
   (ii) the effort required to raise a load of 300 N by the system.
5. A uniform metre scale is kept in equilibrium when supported at the 60 cm mark and a mass M is suspended from the 90 cm mark as shown in the figure. State with reasons whether the weight of the scale is greater than, less than or equal to the weight of mass M.



6. A man can open a nut by applying a force of 150 N by using a lever handle of length 0.4 m. What should be the length of the handle if he is able to open it by applying a force of 60 N?
7. The diagram below shows a lever in use :
   (i) To which class of lever does it belong?
   (ii) If $FA = 40$ cm, $AB = 60$ cm, then find the mechanical advantage of the lever.



8. A coolie is pushing a box weighing 1500 N up an inclined plane 7.5 m long on to a platform, 2.5 m above the ground.
   (i) Calculate the mechanical advantage of the inclined plane.
   (ii) Calculate the effort applied by the coolie.
   (iii) In actual practice, the coolie needs to apply more effort than what is calculated. Give one reason why you think the coolie needs to apply more effort?

1. A body of mass 1.50 kg is dropped from the 2nd floor of a building which is at a height of 12 m. What is the force acting on it during its fall? ($g = 9.8$ ms^{-2}).
2. A boy weighs 360 N on the earth.
   (i) What would be his approximate weight on the moon?
   (ii) What is the reason for your answer?
3. A man can open a nut by applying a force of 150 N by using a lever handle of length 0.4 m. What should be the length of the handle if he is able to open it by applying a force of 60 N?
4. A uniform meter scale can be balanced at the 70.0 cm mark when a mass of 0.05 kg is hung from the 94.0 cm mark.
   (i) Draw a diagram of the arrangement.
   (ii) Find the mass of the metre scale.
5. A boy of mass 30 kg is sitting at a distance of 2 m from the middle of a see-saw. Where should a boy of mass 40 kg sit so as to balance the see-saw?
6. Two forces each of 5 N act vertically upward and downward respectively on the two ends of a uniform metre rule which is placed at its mid-point as shown in the diagram. Determine the magnitude of the resultant moment of these forces about the mid-point.

7. A nut is opened by a wrench of length 20 cm. If the least force required is 2N, find the moment of force needed to loosen the nut.
8. A uniform half-metre rule balances horizontally on a knife edge at 29 cm mark when a weight of 20 gf is suspended from one end.
   (i) Draw a diagram of the arrangement.
   (ii) What is the weight of the half-metre rule ? **(2017)** **Ans.** 105 gf

Chemistry

Q.1- Make a periodie on chart & learn it.

Q.2-

Group No.	IA	II A 12	III A 13	IV A 14	V A 15	VIA 16	VII A 17	VIII A 18
	Li		D			O	J	Ne
	A	mg	E	Si		H	K	
	B	C		F	G			L

a) Which is the most Electronegative.
b) How many valence Electrons are present in G.
c) Write the formula of the compound b/w B & H.
d) In the compound formed b/w F and J what type of bond would b formed.

Q.3- Write Imic & Covalent compound definite and some example.

Q.4-

Element	W	X	Y	Z
Electronic configuration	2, 8, 1	2, 8, 7	2, 5	1

(1). What type of bond is formed b/w

(i) W and X

(ii) Y and Z

What is the formula of the compound formed.

(i) X and Z (i) W and X

Q.5- Classification of acid base & salt with help of definition and example.

Q.6- Explain Importance of PH in everyday life.

Bio

Q 1. Explain the sex Determination son or daughter

Q 2. Stat the three mendals law of inheritance

Q 3. Explain why generally only the male child suffers from colour blindness and not the female

Q 4. Explain the all mitotic phase of cell division

Q.5- Why does the number of leucocytes increase during infection? Explain the all leucocytes cells.

Physical Education

- Make any 1 out of 2 project.
- Diet plan project: Create a healthy weekly diet chart for a school-going student involved in regular physical activity.
- Research work: Write a short essay on 'Effects of Regular Exercise on Mental Health' (500-600 words).

History

- Case study of any recent human rights violations & redressed mechanisms.
- Study chapter- 2 of civics about president and vice-president with their functions and powers.

Geography

Q.1- Answer the following question (for survey sheet" asting 22 to 30 and Northing – 87 to 98.

1. How are cultivated and wooden land represented on the map.
2. Draw the conventional symbol for-
   a) Unlined well (b) Prominent surveyed tree.
   c) water tank with embankment. (d) sand dunes
   e) line kiln quarry.
3. Use of colour in topographical map?

4. Draw diagram- settlement.- Directress
5. Write their meaning
   - Benchmark (B.M)
   - Spotlight
   - Relief map
6. Draw means of irrigation.

Economic

Question:-

1. Explain the types of elasticity of demand, with the help of graph.
2. Write the difference b/w shef in demand & movement along the demand curve.

Topic related to project work-

Task- Visit a Industrial unit and analyse the combination of factors of production used by the unit and prepare a questionnaire.

Commerce-

- Prepare a final account of your Textbook practical problems from question no. 3 to question no. 20.
- Balance sheet of a reknown brand from your point of view.

Computer

Java program to make ATM Interface Simulation using following intimation mentioned below.

Description: Simulate ATM functions like check balance, withdraw, deposited exit.

Concept used : Menu- Driver program class method, input validation.

HAPPY SUMMER VACATION