NEW ERA PUBLIC SCHOOL, PATNA

(Affiliated to CBSE, Delhi, Upto 10+2 Level)

Summer Vacation Assignments (2022-23)

CLASS – X

Date: 19.05.2022

Subject	HOMEWORKS
MATHS	**R. S. Agrawal Book** **1.** Question No. – 08, 10, 12, 15, 17, 20, 23, 25, 26 and 27 of Exercise – 1B. **2.** Question No. – 06 to Question – 11 of Exercise – 1D. **3.** Question No. – 08, 09, 16, 17, 18, 24 and 26 of Exercise – 11. **4.** Question No. – 24, 25, 27, 28, 29, 30 and 31 of Exercise – 13A. **5.** All examples of Exercise – 13B. **NCERT Book** **1.** All examples of Exercise – 8.4.

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REFLECTION OF LIGHT

PHYSICS

A. Very Short Answer Type Questions

Q.1 A ray of light is incident on a plane mirror, i being the angle of incidence. What is the deviation suffered by the ray of light?

Q.2 A plane mirror reflects a pencil of light to form a real image. What is the nature of the pencil of light incident on the mirror?

Q.3 Define principal axis of a spherical mirror.

Q.4 What is the focal length of a plane mirror?

Q.5 Two perpendicular plane mirror forms ..... number of images of a point source of light.

Q.6 What is the magnification produced by a plane mirror?

Q.7 Which mirror would you use for shaving?

Q.8 Suppose x and y are distances of object and image respectively from a mirror. What shall be the shape of the graph between $\frac{1}{x}$ and $\frac{1}{y}$ for a concave mirror ?

B. Short Answer Type Questions

Q.9 An object is placed between two plane parallel mirrors. Why do the distant images get fainter and fainter?

Q.10 Why mirrors used in search light are parabolic and not concave spherical?

Q.11 You read a newspaper because of the light that it reflects. Then why do you not see even a faint image of yourself in the newspaper?

Q.12 If you were driving a car, what type of mirror would you prefer to use for observing traffic at your back and why?

Q.13 We known that plane and convex mirrors produce virtual images of objects. Can they produce real images under some circumstances ? Explain

Q.14 The wall of a room is covered with perfect plane mirror. Two movie films are made, one recording the movement of a man and the other of his mirror image. From viewing the films later, can an outsider tell which is which?

Q.15 A concave mirror is held in water. What would be the change in the focal length of the mirror?

Q.16 What is the difference between the virtual images produced by (i) plane mirror, (ii) concave mirror, (iii) convex mirror?

Q.17 Show that if a ray of light is reflected successively from two mirrors inclined at an angle θ, the deviation of the ray does not depend upon the angle of incidence.

Q.18 Use the mirror equation to deduce that an object placed between f and 2f of a concave mirror produces a real image beyond 2f.

Q.19 Show that a convex mirror always produces a virtual image independent of the location of the object.

Q.20 Prove that the virtual image produced by a convex mirror is always diminished in size and is located between the focus and the pole.

Q.21 Show analytically that an object placed between the pole and focus of a concave mirror produces a virtual and enlarged image.

Q.22 We know that a virtual image cannot be obtained on a screen. But when we see a virtual image, we are obviously bringing it on the retina (may be regarded as a screen) of the eye. Point out the contradiction, if any.

Q.23 Why a concave mirror of small aperture forms a sharper image?

Q.24 What do you understand by the term 'parallax'?

Q.25 How can you distinguish between three different mirrors just by looking at them?

Q.26 What is the effect of size of mirror on the nature of image ?

Q.27 Is irregular reflection follows the laws of reflections or not ?

C. Long Answer Type Questions

Q.28 Prove that the radius of curvature of a spherical mirror is equal to twice the focal length of the mirror.

Q.29 Derive mirror formula for a concave mirror when image formed is (i) real (ii) virtual Also give the sign convention used.

Q.30 Find formulae for magnification produced in the following cases : (i) concave mirror, when image formed is real (ii) concave mirror, when image formed is virtual (ii) convex mirror.

Q.31 Draw a ray diagram to show the formation of image of an object placed between the pole and centre of curvature of a concave mirror. Derive the formula connecting object distance (u), image distance (υ) and focal length (f) for this particular case for the given concave mirror. State clearly the assumptions and sign conventions used.

Q.32 Express magnification produced by a spherical mirror in terms of (i) u and f(ii) υ and f.

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Summer holiday Homework

Subject – Chemistry **Topic - Chemical reaction and equation**

Fill in the blanks:-

1. Addition of hydrogen in a substance in a reaction is known as_____ reaction.
2. In a _____ reaction two or more substances combine to form a new single substance.
3. Unbalanced reactions are also known as _____
4.Reactions in which heat is given out along with the products are called _____- reactions.
5. Reactions in which energy is absorbed are known as _____ reactions.
6. When as element displaces another element from its compound, a _____ reaction occurs.
7. Those reactions, in which two compounds react by an exchange of ions to form two new compounds, are called _____ reactions
8.Precipitation reactions produce _____ salts.
9. Reduction is the _____ of oxygen or gain of hydrogen.
10. The digestion of food in the body is an example of _____ reaction.
11. The addition of oxygen to a substance is called _____.
12. When calcium carbonate is heated, it decomposes to give_____ and ___

True/ False:-

1. The number of atoms of each element is conserved in any chemical reaction.
2. Oxidation is the loss of electrons from a substance.
3. Reduction is the gain of electrons by a substance.
4. A complete chemical equation represents the reactants, products and their physical states symbolically.
5. A magnesium ribbon burns with a dazzling flame in air (oxygen) and changes into a white substance, magnesium oxide.
6. Rusting is a double decomposition reaction.
7. The reaction between nitrogen and hydrogen to give ammonia is an example of a combination reaction.
8. Action of heat on ferrous sulphate is an example of decomposition reaction.
9. The formation of Na+ and CI- ions from sodium and chlorine is an example of a redox reaction.

Very Short Answer Questions:-

Question 1. Write a chemical equation when magnesium metal reacts with aqueous hydrochloric acid to produce a solution of magnesium chloride and hydrogen gas.

Question 2. Can a combination reaction be redox reaction.
Question 3. Why do we apply paint on iron articles?
Question 4. What are the different types of reactions?
Question 5. What is a decomposition reaction? Give example.
Question 6. Define displacement reaction.
Question 7. What happens when sodium reacts with water?
Question 8. Write the chemical equation and name the reaction when a solution of sodium chloride is mixed with a solution of silver nitrate and a white precipitate of silver chloride is formed.
Question 9. Why does the color of copper sulphate solution change, when an iron nail is dipped in it?
Question 10. Why is photosynthesis considered as an endothermic reaction?
Question 11. Potassium chlorate ($KClO_3$) on heating forms potassium chloride and oxygen. Write a balanced equation for this reaction.
Question 12. Give an example of a chemical reaction characterized the change in temperature.
Question 13. What type of chemical reactions take place when:
(a)Limestone is heating?

(b)A magnesium wire is burnt in air?
(c)Electricity is passed through water?
(d)Ammonia and hydrogen chloride are mixed?
(e)Silver bromide is exposed to sunlight?
Question 14. To balance a chemical equation, can we change the formula of either reactants or products?
Question 15. Why should a magnesium ribbon be cleaned before burning in air?
Question 16. If any of the following reactions occurs spontaneously, write the balanced net ionic equation. If not, write no reaction&
(a)$Pb + Zn^{2+}$ _____ $Pb^{2+} + Zn$
(b)$Fe + H^{+}$ _____$Fe^{2+} + H_2$
(c)$Cu + Ag^{+}$ _____ $Cu^{2+} + Ag$
(d)$Cr + Zn^{2+}$ _____$Cr^{2+} + Zn$
Question 17. Nickel (II) nitrate is prepared by heating nickel metal with liquid dinitrogen tetroxide. In addition to the nitrate, gaseous nitrogen monoxide is formed. Write the balanced equation.
Question 18. Why is the amount of gas collected in one of the test tubes in electrolysis of water double of the amount collected in the other? Name this gas.

Question 19. Write a balanced chemical equation with state symbols for the following reactions:-
(i.) Solution of barium chloride and sodium sulphate in water react to give insoluble barium sulphate and the solution of sodium chloride.
(ii).Sodium hydroxide solution (in water) reacts with hydrochloric acid solution (in water) to produce sodium chloride solution and water.

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LIFE PROCESS

A. Single Choice Type Questions

Q.1 CO_2 and O_2 balance in atmosphere is due to
(A) Photorespiration (B) Photosynthesis
(C) Respiration (D) Leaf anatomy

Q.2 During photosynthesis the oxygen in glucose comes from
(A) Water
(B) Carbon dioxide
(C) Both from water and carbon dioxide
(D) Oxygen in air

Q.3 First stable compound in C_3 cycle is
(A) Phosphoglyceraldehyde
(B) Phosphoglyceric acid
(C) Fructose-1-6 diphosphate
(D) Glucose-6-phosphate

Q.4 Dark reaction of photosynthesis occurs in the
(A) Stroma of the chloroplast outside the lamellae
(B) Space between the two membranes of the chloroplast
(C) Membranes of the stroma lamellae
(D) Thylakoid membrane of the grana

Q.5 A specific function of light energy in the process of photosynthesis is to
(A) Activate chlorophyll
(B) Split water
(C) Synthesis of glucose
(D) Reduce CO_2

Q.6 Digestion within a digestive tract is
(A) Incomplete
(B) Extracellular
(C) The same as absorption
(D) An irreversible process

Q.7 Dark reaction in photosynthesis is called so because
(A) It does not require light energy
(B) Cannot occur during daytime
(C) Occurs more rapidly at night
(D) It can also occur in darkness

Q.8 Phloem always flows from a
(A) Solar source to sugar sink
(B) Sugar sink to sugar source
(C) Leaf to the xylem to the phloem
(D) Leaf to a root

Q.9 With regards to natural eating habits, a human is
(A) An herbivore (B) A carnivore
(C) An omnivore (D) A Granivore

Q.10 Muscular contractions of alimentary canal are
(A) Circulation (B) Deglutition
(C) Peristalsis (D) Churning

Q.11 Which of the following regions of the alimentary canal of man does not secrete a digestive enzyme ?
(A) Oesophagus (B) Stomach
(C) Duodenum (D) Mouth

Q.12 A digestive enzyme, salivary amylase, in the saliva begin digestion of
(A) Protein (B) Nucleic acids
(C) Fats (D) Carbohydrates

Q.13 If you chew on a piece of bread long enough, it will begin to taste sweet because
(A) Maltase is breaking down maltose
(B) Lipases are forming fatty acids
(C) Amylase is breaking down starches to disaccharides
(D) Disaccharides are forming glucose

Q.14 In the presence of lactase, lactose breaks down into molecules of
(A) Glucose and galactose
(B) Glucose and fructose
(C) Galactose only

(D) Glucose only

Q.15 Saliva has the enzyme
(A) Pepsin (B) Ptyalin
(C) Trypsin (D) Rennin

Q.16 Pepsin digests
(A) Proteins in stomach
(B) Carbohydrates in duodenum
(C) Proteins in duodenum
(D) Fats in ileum

Q.17 Curding of milk in the stomach is due to the action of
(A) Pepsin (B) Renin
(C) HCl (D) Tenin

Q.18 Chief function of HCl is
(A) To maintain a low pH to prevent growth of micro-organisms
(B) To facilitate absorption
(C) To maintain low pH to activate pepsinogen to form pepsin
(D) To dissolve enzyme secreted in stomach

Q.19 If the stomach did not produce any hydrochloric acid, which enzyme will not function ?
(A) Ptyalin (B) Trypsin
(C) Pepsin (D) Collagenase

Q.20 Chief function of bile is
(A) To digest fat by enzymatic action
(B) To emulsify fat for digestion
(C) To eliminate waste product
(D) To regulate process of digestion

Q.21 Where is bile produced ?
(A) In gall bladder
(B) In blood
(C) In liver
(D) In spleen

Q.22 Ileum is
(A) First part of the small intestine
(B) Middle part of the small intestine
(C) Last part of the small intestine
(D) Not a part of the small intestine

Q.23 Largest gland in human body is
(A) Liver (B) Pancreas
(C) Pituitary (D) Thyroid

Q.24 The specific function of liver is
(A) Excretion
(B) Digestion
(C) Histolysis
(D) Glycogenesis and glycogenolysis

Q.25 The original function of the vertebrate stomach was
(A) Storage
(B) Digestion
(C) Enzyme secretion
(D) Absorption

A. Very Short Answer Type Questions

Q.1 Define heterotrophic nutrition.

Q.2 What are heterotrophs ?

Q.3 Which types of organisms are called consumers ?

Q.4 What is saprophytic nutrition ?

Q.5 Define saprophyte.

Q.6 Define a hervivore.

Q.7 What is carnivore ?

Q.8 Which type of animal is called omnivore ?

Q.9 Define digestion.

Q.10 What is ingestion ?

Q.11 Define egestion.

Q.12 What is the mode of nutrition in *Amoeba* ?

Q.13 What type of digestion occurs in *Paramoecium* ?

B. Short Answer Type Questions

Q.14 Differentiate between autotrophic and heterotrohic nutrition.

Q.15 Distinguish saprophytes from parasites.

Q.16 Differentiate between photosynthetic and holozoic nutrition.

Q.17 How do saprophytic organisms obtain their nourishment ?

Q.18 What is the importance of saprophytes ?

Q.19 What is the action of hydrochloric acid of gastric juice ?

Q.20 Name a digestive juice that has no enzymes. What is the role of this juice ?

Q.21 Name the various parts of large intestine. What is the role of large intestine ?

C. Long Answer Type Questions

Q.22 Explain the mechanism of nutrition of *Amoeba* with the help of suitable diagram.

Q.23 Describe the various types of heterotrophic nutrition.

Q.24 Briefly describe the digestive system of humans.

Q.25 What happens to food in the small intestine ?

Q.26 Why chlorophyll is needed for photosynthesis.

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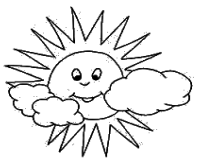
Summer Vacation Assignments (2022-23)

CLASS – X

Date: 19.05.2022

Subject	HOMEWORKS
ENGLISH	✓ **Project work** **1.** Write the biography of Nelson Mandela with the relevant images & decorations in the A4 size paper. **Answer the following questions in your fair copy:-** **1.** How did the rain change? What happened to Lencho's fields? **2.** Why did Lencho say the raindrops were like 'new coins'? **3.** What were Lencho's feelings when the hail stopped? **4.** Who or what did Lencho have faith in? What did he do after then? **5.** What did the postmaster do after reading a letter? **6.** Was Lencho surprised to find a letter for him with money in it? **7.** What made Lencho angry? **8.** Who does Lencho have complete faith in? Which sentences in the story tell you this? **9.** Why does the postmaster send money to Lencho? Why does he sign the letter God **10.** Where did the ceremonies take place? Can you name any public buildings in India that are made Of sandstones? **11.** Can you say how 10th May is an 'autumn day' in south Africa? **12.** At the beginning of his speech, Mandela mentions "an extraordinary human disaster". **13.** What does he mean by this? What is the "glorious human achievement" he speaks of at the end? **14.** What does Mandela thank the international leaders for? **15.** What ideals does Nelson Mandela set for the future of South Africa? **16.** What did the military generals do? How did their attitude change and why? **17.** How does Mandela describe the systems of government in his country **i.** in the first decade, and **ii.** in the final decade, of the twentieth century? **18.** What does courage mean to Mandela? **19.** Which does Mandela think is natural, to love or to hate? **20.** What "twin obligations" does Mandela mention? **21.** What did being free mean to Mandela as a boy, and as a student? HOW does he contrast these "transitory freedoms" with "the basic and honorable freedoms"? **22.** Does Mandela think the oppressor is free? Why/why not? **23.** Why did such a large number of international leaders attend the inauguration? What did it signify the triumph of? **24.** What does Mandela mean when he says he is simply the sum Of all those African patriot who had gone before him ? **25.** How did Mandela's hunger for freedom change his life?



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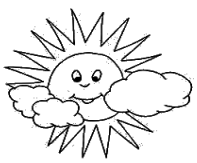
CLASS – X

Date: 19.05.2022

Subject	HOMEWORKS
HINDI	**1.** कबीर की चार साखियाँ याद करें। **2.** मीरा का द्वितीय पद याद कर उसका भावार्थ लिखें। **3.** मीरा का काव्य–परिचय याद करें। **4.** "हरिहर काका" (संचयन) कहानी का केन्द्रीय भाव लिखें। **5.** "बड़े भाई साहब" का केन्द्रीय भाव लिखें। **6.** प्रेमचंद की कोई एक कहानी (पाठ्यपुस्तक से अलग) लिखें। **7.** खेल–सामग्री की माँग करते हुए अपने प्रधानाध्यापक के पास एक आवेदन–पत्र लिखें। **8.** संधि के भेद और परिभाषा उदाहरणसहित लिखें। **9.** संधि–विच्छेद करें :– **1.** पुस्तकालय **2.** कपीश **3.** वागीश **4.** गणेश **5.** रमेश **6.** वाचनालय **7.** रंगालय **8.** मर्माहत **9.** दुर्दशा **10.** मध्यांतर **10.** इन मुहावरों का अर्थ लिखकर वाक्य बनाएँ :– **1.** नौ दो ग्यारह होना **2.** आँख का तारा होना **3.** आँख की किरकिरी होना **4.** मिटटी पलीत होना **5.** दो चार हाथ आजमाना



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CLASS – X

Date: 19.05.2022

Subject	HOMEWORKS
Computer Application	Prepare notes on “Internet and Web Services”.

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