

Sample Question Paper 8 (Answers)
(TERM – I) (Session 2021-2022)
Class X
Science (086)
SECTION – A

Section - A consists of 24 questions.

The first attempted 20 questions would be evaluated.

1. ANSWER: [B]

Explanation: The white solid, lead carbonate is heated and decomposes into yellow coloured lead oxide and carbon dioxide. So, "X" is lead oxide.



2. ANSWER: [D]

Explanation: Crystallization forms, refers a shape and colour. Crystallization of Water of a part of crystal structure. Where we get shape and colour.

3. ANSWER: [A]

Explanation: Exothermic reactions are those in which energy is released in form of heat. The dissolution of sodium hydroxide in water produces heat and make a beaker warm in which dissolution takes place.

4. ANSWER: [B]

Explanation: The milkman shifts the pH of the fresh milk from 6 to slightly alkaline (to decrease the rate of fermentation) because in alkaline condition milk does not set as curd easily.

5. ANSWER: [C]

Explanation: Sodium Hydroxide is an alkali that dissolves in water to form a solution of pH is greater than 7.

6. ANSWER: [D]

Explanation: The given three indicators are natural indicators which so characteristics colours in acidic as well as in basic medium.

7. ANSWER: [D]

Explanation: If you understand the question, you will be finding that solution turns red litmus to blue. That means, it is a basic compound. An acid solution which is HCl would reverse the change.

8. ANSWER: [C]

Explanation: Dilute nitric acid can react only with Mg and Mn that release hydrogen gas.

9. ANSWER: [B]

Explanation: In reactivity series, the order of reactivity of given metals is as follows: Magnesium > Aluminium > Zinc > Fe (iron) > Cu (copper).

Hence, rate of evolution of hydrogen gas in case of (Mg) magnesium is maximum followed by Al, Zn, and then Fe. Cu does not react with dilute hydrochloric acid, so there is no revolving of H₂ gas is observed.

10. ANSWER: [B]

Explanation: The triple Bond in nitrogen is too strong to be broken and hence it is an inert gas which does not take part in combustion.

11. ANSWER: [C]

Explanation: Autotrophs means plants, take in food, and convert them into stored forms of energy. This material is taken in the form of CO_2 and H_2O which is converted into carbohydrates in the presence of Sunlight and chlorophyll.

12. ANSWER: [D]

Explanation: Students you must know that in human beings, the small intestine in human beings is the site of complete digestion of food. The undigested food passes into large intestine that absorb most of the water from undigested food. Hence, your answer should be option [D].

13. ANSWER: [D]

Explanation: Pancreas secretes pancreatic juice which contain following: As trypsin, lipases, and amylases. Lipase breaks down the emulsified fats, Trypsin digests the proteins, and Amylase breaks down the starch. As you know break down of foods is necessary for energy and all the metabolic processes in our body.

14. ANSWER: [A]

Explanation: Lactic acid is formed after and aerobic respiration in muscles, and this happens in cytoplasm.

15. ANSWER: [A]

Explanation: You must know that in human beings, valves in heart, ensure that blood does not flow backwards, when the atria or ventricles contract. Hence, your answer will be option [A].

16. ANSWER: [A]

Explanation: Here in this chat, Phloem is responsible to translocation of food, nephron helps in excretion and in the other hand, veins carry deoxygenated blood and platelets helps in clotting the blood.

17. ANSWER: [A]

Explanation: You must know that a real image equal in size to the object, is obtained when the object is placed at the centre of curvature in front of a concave mirror.

18. ANSWER: [A]

Explanation: Both real and virtual images, can be create by Concave Mirrors. As images can be upright (when it is virtual) or inverted (when it is real). They can be behind the mirror (when it is virtual) or in front of the mirror (when it is real), they can also be enlarged, reduced or the same size as object.

19. ANSWER: [D]

Explanation: We know that reflection depends upon the smoothness of the material at which light is incident or coming. Remember, the amount of light reflected depend upon the properties of the material and the surface polished.

20. ANSWER: [C]

Explanation: A virtual, erect, and diminished image irrespective of object distance, can be made by convex mirror.

21. ANSWER: [A]

Explanation: RS is the emergent ray in the given glass slab, And PQ is incident ray, QR is refracted ray.

22. ANSWER: [A]

Explanation: $\frac{1}{v} + \frac{1}{u} = \frac{1}{f}$

We get, $\frac{1}{v} + \frac{1}{-15} = \frac{1}{-10}$

$\frac{1}{v} = +2-3/30, \frac{1}{v} = -1/30$

$v = -30 \text{ cm.}$

So, image distance, on the left side of the mirror. It is magnified, inverted, and real.

23. ANSWER: [C]

Explanation: A plane mirror always forms virtual images. A virtual image is a just illusion. A virtual image, which cannot be obtained on a screen.

24. ANSWER: [B]

Explanation: Blue light moves faster than green light.

SECTION - B

Section - B consists of 24 questions (Sl. No. 25 to 48).

The first attempted 20 questions would be evaluated.

25. ANSWER: [A]

Explanation: The given reaction shows that "Q" is the most reactive as it has replaced both "P" and "R" from their compounds.

26. ANSWER: [A]

Explanation: A more reactive metal has a tendency to get oxidised and less reactive metal ion has a tendency to get reduced. A less reactive can be displaced from its salt solution by a more reactive metal.

27. ANSWER: [B]

Explanation: Oxidation is a chemical reaction in which an electro negative element is added into any chemical species (Atom, Ion, or Molecule).

28. ANSWER: [C]

Explanation: When it is heated, it disintegrates into sodium carbonate (Na_2CO_3), water, and carbon dioxide.

29. ANSWER: [D]

Explanation: Graph Two (II), is steeper than graph One (I). This shows that reaction is faster in experiment Two (II). Both graphs level off at the same value. This shows that same amount of marble chips and hydrochloric acid is used for both experiments. Also, it can be concluded that marble chips in experiment Two (II) must have been smaller in size.

30. ANSWER: [B]

Explanation: The chemical reaction is as follows:



31. ANSWER: [B]

Explanation: Both "A" and "R" are correct but R is not correct. Here, you can explain easily as sodium hydrogen carbonate reacts with acid present in fire extinguisher to produce carbon di oxide.

32. ANSWER: [B]

Explanation: Ionic compounds have high melting and boiling point, due to presence of strong electrostatic forces of attraction which are held between oppositely charge ions.

33. ANSWER: [B]

Explanation: Excretion is a biological process, by which harmful waste are removed from body of an organisms. Plants excrete out gaseous products like carbon dioxide, and water vapour via stomata in leaves and in lenticles in stems.

34. ANSWER: [D]

Explanation: Focal length is the property of mirror & is independent of the medium in which it is placed. So, when a concave mirror is placed underwater, its focal length remains same.

35. ANSWER: [A]

Explanation: During the day time, sky appears blue. This is because the size of the particles in the atmosphere is smaller than the wavelength of visible light, so they scatter the light of shorter wavelengths, i.e., blue colour light is scattered.

36. ANSWER: [A]

Explanation: The mineral acids are those which are obtained from minerals and do not contain carbon. E.g., HCl, H₂SO₄, HNO₃, etc.

37. ANSWER: [D]

Explanation: During inhalation, the air for the respiration is drawn into our body through the nostrils, then it goes into nasal passage. From there, oxygen enters into pharynx, larynx then into the windpipe, bronchi, lungs and finally to the alveoli where gaseous exchange take place.

38. ANSWER: [B]

Explanation: Non-metals are electro negative elements because they can form negative ions by gaining electrons. Metals are electro-positive.

39. ANSWER: [A]

Explanation: Aerobic respiration occurs in mitochondria. Since the process takes place in the presence of air or oxygen, it is called aerobic respiration.

40. ANSWER: [A]

Explanation: "X" is potassium Hydroxide, which absorbs the CO_2 gas. In this experiment, plant is destarched first and then kept in the bell jar along with potassium Hydroxide in a watch glass. When this setup is kept under sunlight for few hours and is then tested for starch, it will show negative result. This shows that plants fail to get CO_2 to perform photosynthesis as it gets absorbed by potassium hydroxide.

41. ANSWER: [C]

Explanation: Our body has one vein which is called "Pulmonary vein", which carries blood (oxygenated) from lungs to the heart.

42. ANSWER: [B]

Explanation: The oxygen gas produced during photosynthesis is released into the surroundings through the stomata. Stomata are also called site of gaseous exchange.

43. ANSWER: [D]

Explanation: The angle of incidence is angle between the normal and the incident ray. The angle of emergence is between the normal and the emergent ray.

44. ANSWER: [A]

Explanation: Focal length of a plane mirror is infinite.

45. ANSWER: [D]

Explanation: Focal length

$$f = -R/2 = -12/2 = -6 \text{ cm}$$

46. ANSWER: [D]

Explanation: Size of scattered light depends on wavelength of light and size of scattering particle.

47. ANSWER: [A]

Explanation: When we cut sphere, two parts we get and here spherical mirror is formed. But remember, applying silvering colour or agent either the inside or outside surface.

48. ANSWER: [A]

Explanation: Principal axis is the imaginary line joining two centres of curvature.

SECTION - C

Section - C consists of three Cases followed by questions. There are a total of 12 questions in this section. The first attempted 10 questions would be evaluated.

Case - 1:

49. ANSWER: [A]

Explanation: Black residue is obtained in test tubes One (I) and Three (III) i.e., iron gets displaced in test tubes One (I) and Three (III). Therefore, metals "P" and "R" should be more reactive than iron.

50. ANSWER: [A]

Explanation: Here, No change is observed in test tubes Two (II) and Four(IV) hence, metals Q and S should be less reactive than iron. Hence, your answer will be option [A].

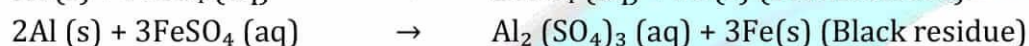
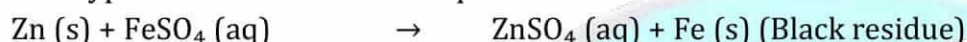
51. ANSWER: [D]

Explanation: Black residue is obtained in test tubes One (I) and Three (III) i.e. iron is displaced in test tubes One (I) and Three (III). No change is observed in test tubes Two (II) and Four (IV), so metals Q and S should be less reactive than iron. Therefore, metal P can be zinc (Zn), Q can be copper (Cu), R can be Aluminium (Al) and S can be silver (Ag).

52. ANSWER: [B]

Explanation: The black residue is seen in test tube I and III due to the formation of iron.

This type of reaction is called displacement reaction.



Case - 2:

53. ANSWER: [C]

Explanation: The level "A" is renal artery, "B" is glomerulus, "C" is renal tubule, and "D" is Bowman's capsule.

54. ANSWER: [A]

Explanation: The upper Cup shaped end of a nephron is called "Bowman's capsule". It contains glomerulus which is a group of blood capillaries.

55. ANSWER: [A]

Explanation: The rubber tubing on "B" is not divided into as many branches as the capillary network of the glomerulus. In addition, the stem of the "thistle funnel" (E) is not coiled to represent the curved tubules of the nephron.

56. ANSWER: [A]

Explanation: In the diagram "R" represent proximal convoluted tubule. The proximal convoluted tubule avidly reabsorbs filtered glucose into the peritubular capillaries so, that it is all reabsorbed by the end of the proximal tubule.

Case -3:

57. ANSWER: [B]

Explanation: As shown in the given diagram Saraswati, would need convex lenses in order to make the telescope.

58. ANSWER: [A]

Explanation: Magnification obtained by a lens is the ratio of height of image (h_1) to the height of object (h_2) i.e.,

Magnification, $m = h_1/h_2$

59. ANSWER: [C]

Explanation: Magnification, $m = 3$

$v = 24$ cm, Image distance

Object distance, $u = ?$

As, $m = v/u$

$u = v/m$

$= 24/3$

$= 8$ cm

Hence, she should put the object at 8 cm from the lens L_2 .

60. ANSWER: [C]

Explanation: The telescope made by using not so thick lenses (i.e., thin lenses) will not be very heavy. Also, it will allow considerable amount of light to pass through it.

