

Taluk Level Preparatnary Examination – January 2023
Hassan Taluk

Subject : Science,
Class : 10

Time : 3:15 minutes
Max. Marks : 80

Part – A (Physics)

I. Four alternative answers are given to the following questions. Choose the appropriate one among them and write the complete answer with its letters: **1x3 =3**

1. According to Joule's law of heat production, which of the following statements is not correct?
A) Heat is directly proportional to the current flowing in the resistor.
B) Heat is directly proportional to the square of the current flowing in the resistor
C) Temperature is directly proportional to resistance
D) Heat is directly proportional to the time the current flows through the resistor
2. The part of the human eye where the image is formed.
A) Cornea B) Spectrum C) Pupil D) Retina
3. Which of the following energy sources has the least environmental pollution in production and consumption?
A) Nuclear Energy B) Thermal Power Stations C) Solar Energy D) Geothermal Energy

II. Answer the following questions. :

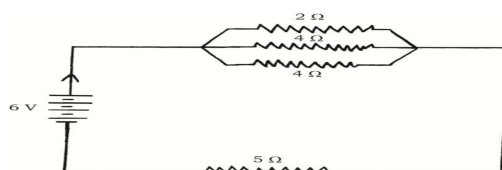
1x2 = 2

4. What is the function of electrical fuse in household electrical circuits?
5. What is lens power?

III. Answer the following questions. :

2x5 = 10

6. Draw a neat diagram showing resistors in series.
7. Observe the given circuit. Calculate the total resistance of the circuit and the total current flowing in the circuit.



8. Draw a ray diagram of the image formed when an object is placed between 2F and F of a convex lens. State the position and nature of image with the help of a diagram

OR

Draw a ray diagram of the image formed when an object is placed between C and F of concave mirror. State the position and nature of image with the help of a diagram

9. Once a student locate the stars while observing the sky during night, Was that position of stars really true.? Justify your answer.
10. List the limitations of harnessing wind energy.

IV. Answer the following questions. :

3x3 = 9

11.3 light bulbs of 100W capacity are connected in series in a circuit. In another circuit of the same source, 3 bulbs of the same capacity are connected in parallel.

- A) Do the bulbs of both the circuit glow with the same luminance? Justify your answer.
B) If one bulb in both circuits fails, will the rest of the bulbs light up?

OR

In an electrical circuit, electrical appliances are connected in parallel instead of in series. What are the benefits of linking?

12.A) A perpendicular to the principal axis of concave lens whose converging distance is 10 cm. An object is placed at a distance of 15 cm. Find the distance of image.

B) How will you find the actual converging distance of given concave mirror.

13.Explain the process by which rainbows form in the atmosphere.

V. Answer the following questions. :

4x1 = 4

14.A) Which law states the direction of magnetic field around a straight conducting wire? State that rule.

B) What is electric motor?

C) Name two devices that use electric motors.

Part – B (Chemistry)

VI. Four alternative answers are given to the following questions. Choose the appropriate one among them and write the complete answer with its letters: 1x2 = 2

15.In the following which does not determine the chemical reaction.

- A) Change in color B) Change in state
C) Change in shape D) Change in temperature

16.Give the appropriate term to fill in the blanks in the equation below.

Acid + Base $\rightarrow$ Salt + _____

- A) Hydrogen B) Water C) Carbon dioxide D) Oxygen

VII. Answer the following questions. :

1x2 = 2

17.What are Isomers ?

18.Name the element with 5 valence electrons with two shell.

VIII. Answer the following questions. :

2x1 = 2

19.What is endothermic reaction? Give an example.

IX. Answer the following questions. :

3x2 = 6

20.Draw a neat labelled diagram showing the electrolysis of water.

21.A) How did Mendeleev's periodic table lead to the discovery of new elements?

B) How many groups and periods does the modern periodic table ?

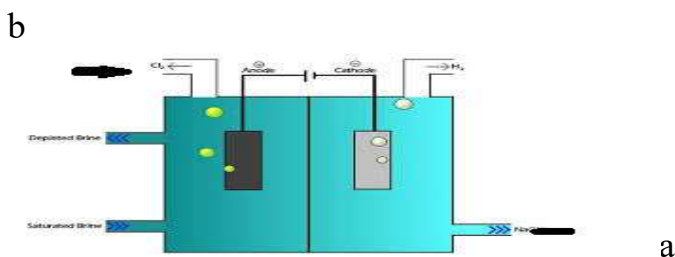
OR

What is atomic size? Atomic size decreases as you move up the periodic table of the modern periodic table and increases as you move down the 'class' (group). why ? Explain.

X. Answer the following questions. :

4x2 = 8

22. Below is a picture of the Chlor – Alkali process. Observe the picture and answer the following questions.



A) What is the substance released in the part marked (a) in the figure?

B) What is the substance released in the part marked as (b)? What are its advantages?

23. A) List the applications of ethanol.

B) How can esters be converted into soap?

C) What are homologous series ?

OR

Explain addition and substitution reactions with an examples.

XI. Answer the following questions. :

5x1 =5

24. Explain the experimental procedure with neat diagram of the conductivity of a salt solution.

Part – A (Biology)

XII. Four alternative answers are given to the following questions. Choose the appropriate one among them and write the complete answer with its letters: 1x3 =3

25. Identify the relation in the second pair.

Auxin : Cells grow longer : : Absciscic acid : _____

A) Inhibits growth.

B) Stimulates cell division.

C) Plant bends towards light.

D) Helps in stem growth.

26. In the food chain given below, if the energy content of the diet consisting of snake is 5Kj, what is the energy content of the diet consisting of grass?

Grass → grasshopper → frog → snake → eagle

A) 5Kj

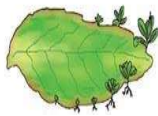
B) 50Kj

C) 500Kj

D) 5000Kj

27. The diagrams given below show the methods of reproduction in various organisms. Which diagram does not belong to this group.

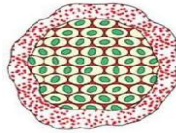
A)



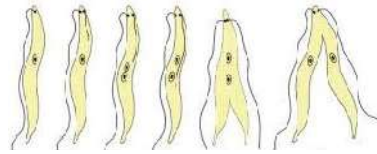
B)



C)



D)



XIII. Answer the following questions. :

1x4 = 4

28. Why do arteries have a thicker, more elastic wall compared to veins?
29. Why are the organisms resulting from asexual reproduction almost identical?
30. What is the sexually transmitted virus infection in humans?
31. What is the greenhouse gas produced by burning coal?

XIV. Answer the following questions. :

2x2 = 4

32. How does the process of photosynthesis affect under the following circumstances?
 - A) On cloudy days
 - B) When the aperture is blocked by dust
33. How are involuntary actions and reflex actions differ from each other?

OR.

“When we step on a thorn, we suddenly pull our foot back” write the sequence of steps involved in this action.

XV. Answer the following questions. :

3x4 = 12

34. A) State the methods of excretion found in plants.
- B) What is the main driving force for movement of water in xylem?

OR

Explain the translocation of nutrients in plants

35. A) Which synthetic chemical is responsible for the destruction of ozone layer?
- B) What are biodegradable and non-biodegradable pollutants?
36. Draw a neat labeled diagram of longitudinal section of a flower.
37. A teacher in a class says that the evolution of feathers in birds has nothing to do with flight. Can the teacher's argument be accepted? Explain.

OR

“Illustrate with the help of an example the concept that the experiences acquired by an organism during its lifetime are not transferred to the next generation.

XIV. Answer the following questions. :

4x1 = 4

38. Draw a neat diagram showing the structure of human brain and label the following parts.
 - A) Cranial
 - B) Pans
