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PRACTICE PAPER FOR
II PREPARATORY EXAMINATION 2015-2016
STD:- X

Sub: - Science & Technology   **Time:- 3 Hours**
Date:-   **Marks:- 90**

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General Instructions:-

1. The question paper comprises of two sections, A and B. You are to attempt both the sections.
2. All questions are compulsory.
3. All questions of section A and all questions of section B are to be attempted separately.
4. Question numbers 1 to 3 in section A are one mark questions. These are to be answered in one word or one sentence each.
5. Question numbers 4 to 6 are two mark questions, to be answered in about 30 words each.
6. Question numbers 7 to 18 are three mark questions, to be answered in about 50 words each.
7. Question numbers 19 to 24 are five mark questions, to be answered in about 70 words each.
8. Question numbers 25 to 33 in section B are multiple choice questions based on practical skills. Each question is a one mark question. You are to choose one most appropriate response out of the four provided to you.
9. Question numbers 34 to 36 are explanatory questions based on practical skills and carry 2 marks each.

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SECTION – A

1. Which of the two is an environment friendly practice-to serve tea in disposable paper cups or disposable plastic cups in trains? Why?   **1M**

2. Name the product formed when hydrogen is added to ethane.   **1M**

3. If a trait X exist in 25% of population and trait Y exist in 50% of population, which trait has arisen early?   **1M**

4. Draw a ray diagram to obtain a real magnified image using a spherical mirror.Label the object and image as AB and A'B' respectively.   **2M**

5. i) What is meant by periodicity of properties of elements with reference to periodic table?   **2M**

    ii) Why do all elements of the same group have similar properties?

6. What is the genetic difference between sperms and eggs of humans? State the reason.   **2M**

7. An object of height 10 cm is placed at a distance of 30 cm from a converging lens of focal length10 cm. Calculate the position and height of the image.   **3M**

8. Define the power of accommodation of eye. What is the near point and far point of a normal eye? Why is it not possible for us to see objects if they are placed closer than 25 cm?   **3M**

9. State three differences between myopia and hypermetropia.   **3M**

10. Mention the role of crystalline lens, retina and ciliary muscles in the human eye.   **3M**

11. i) Why does reactivity increases down the group I?   **3M**
     ii) Why does the atomic size decreases along II period from left to right?
     iii) Which is smaller Li or Na and why?

12. Mention any two points to differentiate between oxidation and combustion. **3M**
    Give one example of each.

13. a) Which bacteria is found in contaminated water?   **3M**
     b) Name any four categories of people who depend on the forest resources,
        mentioning major needs of each category.

14 Define fossil. Explain briefly any two ways in which the study of fossils helps **3M**
    in understanding about the past life.

15. i) What is biological magnification?   **3M**
     ii) How does DDT enter human body?

16. What are the various methods of contraception? Explain each one of them. **3 M**

17. Pure breed tall pea plants were first crossed with pure breed short pea plants. **3M**
    The pea plants obtained in F1generation are then crossed breed to produce
    F2 generation pea plants
        i) What do the plants in F1 generation look like?
        ii) What is the ratio of tall plants to dwarf plants in F2 generation?
        iii) Which type of plants were missing in F1 generation but reappeared
           in the F_2 generation?

18. What is the significance of homologous and analogous organs in the process **3M**
     of evolution?

19. a) Why was it necessary to change the basis of classification from atomic mass
       to atomic number?   **5M**
    b) Find the atomic mass of first element if three elements from Dobereiner triad
       in which the atomic mass of middle element is 23 and last element is 39.
    c) Which element can gain electron easily O or F? Why?
    d) An element A reacts with oxygen to form A_2O.
       i) State the number of valence electrons in A.
       ii) To which group of periodic table A belong?

20. An organic compound X on heating with concentrated H_2SO_4 forms a
     compound Y which on addition of one molecule of hydrogen in the presence of
     Nickel forms a compound Z. One molecule compound Z on combustion forms **5M**
     two molecule of CO_2 and three molecules of H_2O. Identify giving reasons the
     compounds X, Y and Z. Write the chemical equations for all the chemical
     reactions involved.

21. a) Light enters from air to kerosene having refractive index 1.47. What is the **5M**
       speed of light in kerosene? The speed of light in air is $3x10^8$ m/s.
    b) A real image, one-fifth the size of the object is formed at a distance 18cm
       from a mirror. Calculate its focal length.
    c) Find the power of a concave lens of focal length 2m.

22. Light enters from air to glass having refractive index 1.5.What is the speed of **5M**
    light in glass? The speed of light in air is $3* 10^8$ m/s.
    b) A real image, one-fifth the size of the object is formed at a distance 18 cm
       from a mirror .Calculate its focal length.
    c) Find the power of a convex lens of focal length 2m.

23. a) When does ovulation initiates during the menstrual cycle in a normal healthy **5M**
       female?
    b) Draw a diagram to show the reproductive system in human females
       and label the following parts:-
       i) site of ovulation   ii) site of fertilization   iii) site of foetus development

24. a) How is the sex of a new born individual determined? Explain with the help of an illustration. **5M**

b) Do genetic combination of mother's play a significant role in determine the sex of a new born child?

SECTION B

25. Acetic acid was added to four test tubes containing the following chemicals: **1M**

    (a) sodium carbonate   (b) blue litmus solution

    (c) lime water   (d) distilled water

Which amongst these is /are correct option(s) for carrying out a characteristic test for identification of acetic acid in the laboratory?

    (a) A only   (b) C only   (c) A and B   (d) C and D

26. Which of the following is/are present in hard water? **1M**

    (a) $Ca(HCO_3)_2$ (b) $CaCl_2$

    (c) KCl   (d) both a and b

27. The reaction in which the vegetable oil is hydrolysed with the help of caustic soda is called:- **1M**

    (a) saponification   (b) hydrogenation

    (c) esterification   (d) decarboxylation

28. Which statement is true? **1M**

    i) The convex lens always produces real image.

    ii) The convex lens always produces virtual image.

    iii)The concave lens always produces virtual image.

    iv) The concave lens always produces real image.

29. A bulb is kept at the focus of X to produce a powerful parallel beam of light. X is **1M**

    (a) Concave mirror   (b) Convex mirror

    (c) Plane mirror   (d) Concave lens

30. A ray of light passes from medium 1 to medium 2. The medium 1 is **1M**

i) Rarer   ii) Denser

iii) maybe denser or rarer   iv) neither denser nor rarer
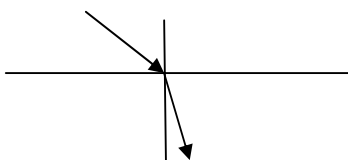
31 The scar on a seed at the point of attachment of stalk is known as **1M**

    (a) micropyle   (b) hilum   (c) funicle   (d) testa

32 Pitcher of pitcher plant is homologous to **1M**

    (a) Venus fly trap   (b) petals of rose

    (c) tendrils of pea plant   (d) leaf of bougainvillia

Seed coat of a angiosperms forms from **1M**

33 (a) ovary   (b) carpel   (c) ovule   (d) pedicel

34 Ethyl alcohol is added to acetic acid in presence of concentrated H_2SO_4 .What is the role of H_2SO_4? What will be the odour of the compound formed? Name the functional group. **2M**

35 How can you distinguish between convex lens and concave lens by looking at the image? **2M**

36 What are cotyledons? What is their function in the seed? **2M**

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