

Prashant

Pb(N<sub>3</sub>)<sub>2</sub> Cambridge PbI<sub>2</sub> P<sub>2</sub>N<sub>3</sub>

25

SUMMATIVE ASSESSMENT-I, 2012-13

SNP-44

SCIENCE

Time Allowed : 3 hrs.

CLASS-X

Maximum Marks : 90

SET-B

**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. There is no overall choice. However, internal choice has been provided in all three questions of five marks category. Only one option in such questions is to be attempted.
4. All questions of section A and all questions of section B are to be attempted separately.
5. Question numbers 1 to 2 in section A are one mark questions. These are to be answered in one word or one sentence.
6. Question numbers 3 to 8 are two mark questions, to be answered in about 30 words.
7. Question numbers 9 to 19 are three mark questions, to be answered in about 50 words.
8. Question numbers 20 to 24 are five mark questions, to be answered in about 70 words.
9. Question numbers 25 to 42 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.
10. An additional 15 minutes time has been allotted to read this question paper only. Candidates will not write any answer on the answer sheet during this time interval.
11. Question nos. 1, 5, 6, 13, 14, 18, 19, 20, 21 and 25-30 are from Chemistry. Question nos. 2, 7, 8, 9, 10, 15, 16, 17, 22, 23 and 31-36 are from Physics. Question nos. 3, 4, 11, 12, 24 and 37-42 are from Biology.

**SECTION-A**

1. Give an example of photo chemical reaction.
2. How are burning of fuels responsible for causing acid rains?

Th  
P.T.O.

3. Name any two digestive enzymes secreted in the human digestive system and write their functions.
4. Which endocrine gland performs the dual function of producing an enzyme as well as a hormone and where is this gland located in the human body? Name the hormone which is secreted by this endocrine gland. State the function of this hormone.
5. An old cycle frame was left in open for a few days. A brown layer got slowly deposited on its surface which could be removed when rubbed with sand paper. What actually happened? Write any two methods to prevent this.
6. (a) What solid product is obtained on thermal decomposition of baking soda?  
 (b) Give the chemical equation involved.  
 (c) Give one use of baking soda.  
 (d) What is the difference between baking soda and baking powder?
7. Which is having more resistance a 220V, 100 W bulb or a 220V, 60 W bulb? Give reason for your answer.
8. Two copper wires A and B of length 30m and 10m as radii 2cm and 1cm respectively. Compare the resistances of the two wires. Which will have less resistance? Show with the help of calculations.
9. What are renewable sources of energy? Give two examples. Why is it not possible to make use of solar cells to meet all our energy needs? State at least two reasons to support your answer.
10. Draw a neat diagram of a biogas plant and label (i) inlet of slurry, (ii) digester, and (iii) gas outlet.
11. (a) What constitutes the Central Nervous System in human beings?  
 (b) Name the parts of the brain which control the following activity :  
 (i) Salivation  
 (ii) Walking on a tight rope  
 (iii) Hearing  
 (iv) Breathing
12. (i) Differentiate between a sensory neuron and a motor neuron.  
 (ii) How is the brain protected in our body?  
 (iii) Name the parts of the brain responsible for (a) precision of voluntary actions, (b) body posture and balance of the body.
13. (i) Name two metals which starts floating after some time when immersed in water and why?  
 (ii) Why metal sulphides and carbonates are converted into metal oxides before reduction?

$\frac{22}{7} \times 0.02 \times 0.02$   
 $\frac{22}{7} \times 0.04$

14. (a) How will you prepare dilute sulphuric acid from concentrated sulphuric acid? Give reason for your answer.  
 (b) What is the effect of dilution on hydronium ion concentration of the acid?  
 (c) How would pH of the solution vary with the dilution of an acid?
15. Two bulbs of 100W each and two heaters of 250W each work on an average 6 hours a day. If the energy costs Rs 1.75 per kwh, calculate the monthly bill when power is supplied at 220V.
16. (a) A magnetic compass shows a deflection when placed near a current carrying wire. How will the deflection of the compass get affected, if the current in the wire is (i) increased, (ii) reversed?  
 (b) A Positively charged particle projected towards west is deflected towards north by a magnetic field. (c) What is the direction of the magnetic field? State the rule applied to determine direction of magnetic field.
17. (a) Distinguish between the terms 'overloading' and 'short-circuiting' as used in domestic circuits.  
 (b) What is the function of an earth wire? Why is it necessary to earth the metallic bodies of electrical appliances?
18. When a substance 'X' is added to water, it forms another substance 'Y' with release of large amount of heat. 'Y' is applied on the wall for white washing.  
 (a) Identify 'X' and 'Y'.  
 (b) Give chemical equation for the reaction of 'X' in water.  
 (c) Give chemical equation for the reaction that takes place when 'Y' comes in contact with carbon dioxide.
19. Write the balance chemical equation for the following reactions :  
 (i) Barium chloride + Potassium sulphate  $\rightarrow$  Barium sulphate + potassium chloride.  
 (ii) Zinc + Silver nitrate  $\rightarrow$  Zinc nitrate + Silver  
 (iii) Aluminium + Copper(II) chloride  $\rightarrow$  Aluminium chloride + copper.
20. (i) A student dropped few pieces of marble in dilute hydrochloric acid contained in a test tube. The evolved gas was passed through lime water. What change would be observed in lime water? Write the balanced chemical equations for both the chemical changes observed.  
 (ii) How is the concentration on Hydronium ion effected when solution of a base is diluted?  
 (iii) Why should curd not be stored in copper vessels?
21. (a) How do you classify elements into metals and non-metals on the basis of their electronic configuration? Choose metal and non-metal out of the following :

A<sub>11</sub><sup>23</sup> B<sub>9</sub><sup>19</sup> C<sub>12</sub><sup>24</sup> D<sub>15</sub><sup>31</sup> E<sub>17</sub><sup>35</sup>

(3) Sc-X-S NP-B

*Ca(OH)<sub>2</sub> + CO<sub>2</sub>  
 CaCl<sub>2</sub> + H<sub>2</sub>O*

*16/6/21 = 16/11*

Show the type of bond formed using electron dot structures when A combines with E.

Or

- (a) Give reason :
- Sodium is stored under kerosene oil.
  - Aluminium is a highly reactive metal, yet it is used to make utensils for cooking.
  - Carbonate and sulphide ores are usually converted into oxides during the process of extractions.
- (b) Tarnished copper vessels being cleaned with lemon or tamarind juice. Explain why these sour substances are effective in cleaning the vessels.
22. (a) Three resistors are given at  $R_1 = 10\Omega$ ,  $R_2 = 20\Omega$  and  $R_3 = 30\Omega$ . Calculate the effective resistance when they are connected in series. Also determine the voltage across the  $10\Omega$  resistor and current in the  $20\Omega$  resistor when the combination is connected to a 6 V battery.
- (b) An electric heater of resistance  $20\Omega$  generates 60,000 J of heat when the electric current is passed through it for 5 minutes. Calculate the current passing through the heater.
23. (a) State the rule to determine the direction of a
- Magnetic field produced around a straight conductor carrying current.
  - Force experienced by current-carrying straight conductor placed in a magnetic field which is perpendicular to it.
  - Current induced in a coil due to its rotation in a magnetic field.
- (b) Differentiate between AC and DC. Write one advantage of AC over DC.
- Or
- (a) With the help of an activity, explain the method of inducing electric current in a coil with a moving magnet. State the rule used to find the direction of electric current thus generated in the coil.
- (b) Two circular coils P and Q are kept close to each other, of which coil P carries a current. What will you observe in Q?
- If current in the coil P is changed?
  - If both the coils are moved in the same direction with the same speed?
- Give reason.
24. Answer the following questions :
- Does a plant undergo photosynthesis and transpiration together?
  - Do the stomatal pores of a plant close? If yes, when?
  - How and why pepsin gets activated in the stomach of humans?
  - How is the inner lining of stomach saved from the acidic effect of HCl.
  - What are the end products of protein and fat digestion?

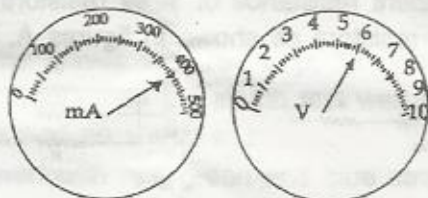
Or

*Wohlschlag*

- (a) Define transpiration. Name the components of xylem. Give two benefits of transpiration.  
(b) Explain in brief the functioning of phloem.

**SECTION-B**

25. The two colours seen at the extreme ends of the pH chart are :  
(a) red and blue (b) red and green  
(c) green and blue (d) orange and green
26. A student took the following samples to find out their pH using pH paper. The teacher remarked that one of the samples taken was not proper. The teacher was referring to :  
(a) dilute hydro chloric acid (b) lemon juice  
(c) soda ash (d) soap solution
27. A drop of colourless liquid was placed on blue litmus paper. The litmus paper turned red. The liquid could be :  
(a) dilute Hydro chloric acid (b) dilute sodium hydroxide solution  
(c) distilled water (d) Sodium bicarbonate solution
28. No observable change is noticed when dilute hydrochloric acid is added to :  
(a) Sodium hydroxide solution (b) sodium carbonate solution  
(c) blue litmus solution (d) zinc metal
29. Among the following set of chemicals where reaction will take place?  
(a) Aluminium + Zinc sulphate (b) Zinc + Zinc sulphate  
(c) Iron + Zinc sulphate (d) Copper + Zinc sulphate
30. The colour of coating developed on zinc rod on dipping in aq. copper sulphate solution will be :  
(a) blue (b) brown (c) white (d) green
31. The current flowing through a conductor and the potential difference across its two ends is as per readings of the ammeter and the voltmeter shown below :



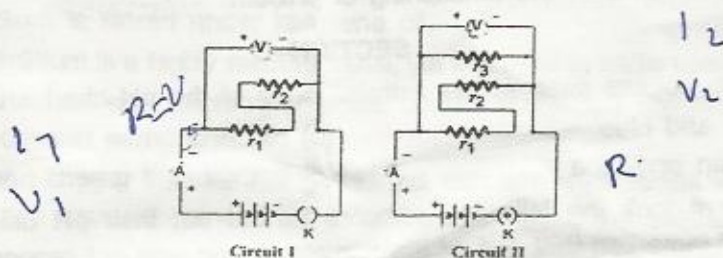
$R = \frac{V}{I} = \frac{5}{0.4} = 12.5$

$400 \times 10^{-3}$   
 $4 \times 10^{-1}$

The resistance of the conductor would be :

- (a) 0.150  $\Omega$  (b) 1.50  $\Omega$  (c) 15.0  $\Omega$  (d) 150.0  $\Omega$

32. Study the two circuits circuit I and circuit II shown below. In circuit I, ammeter reads current  $I_1$  and voltmeter reads voltage  $V_1$ . In circuit II, ammeter reads current  $I_2$  and voltmeter reads voltage  $V_2$ .

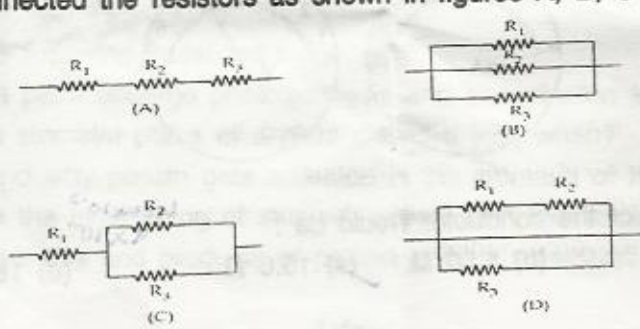


Which one of the following is the correct statement about the ammeter and voltmeter readings?

- (a)  $I_1 > I_2$ ;  $V_1 = V_2$                       (b)  $I_1 < I_2$ ;  $V_1 = V_2$   
 (c)  $I_1 > I_2$ ;  $V_1 > V_2$                        (d)  $I_1 < I_2$ ;  $V_1 < V_2$
33. A voltmeter has a least count of 0.05 volt. While doing Ohm's law experiment, a student observed that the pointer of the voltmeter coincides with 15th division. The observed reading is :  
 (a) 0.75V                      (b) 0.075V                      (c) 7.5V                      (d) 75V
34. The diagram shows a network of four resistors which is connected to an electric source. Identify the resistors which are connected in series in this network.



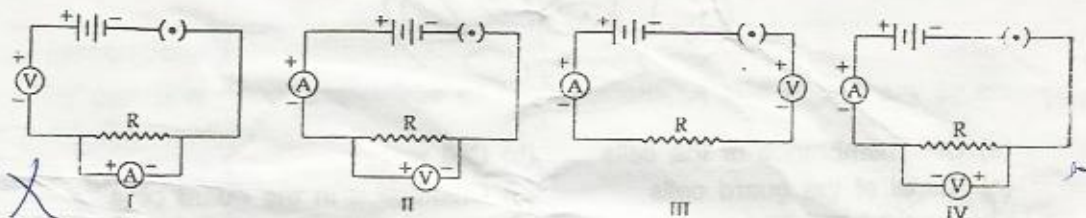
- (a) B, A and D                      (b) B, C and D  
 (c) C, D and A                      (d) A, B and C
35. To determine the equivalent resistance of three resistors arranged in parallel four students connected the resistors as shown in figures A, B, C and D.



The correct set-up is that of student :

- (a) A (b) B (c) C (d) D

36. While performing the experiment on studying the dependence of current (I) on the potential difference (V) across a resistor, four student I, II, III and IV set-up the circuit as shown.



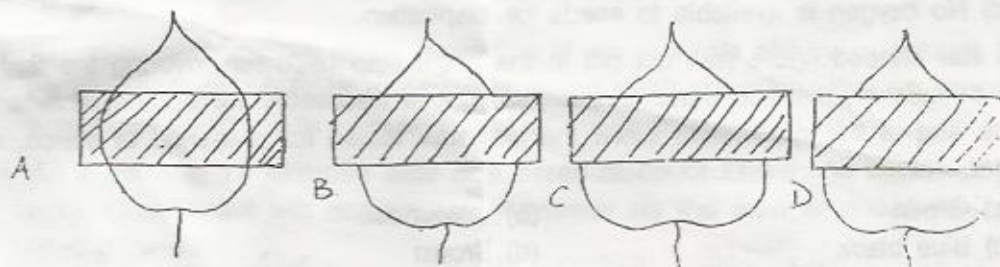
The correct result will be obtained by the student :

- (a) I (b) II (c) III (d) IV

37. During the experiment to show that plants perform photosynthesis, the destarched leaf is boiled in alcohol. Once boiling is completed :

- (a) alcohol remains greenish.  
 (b) leaf remains greenish.  
 (c) alcohol turns greenish and leaf becomes colourless.  
 (d) No visible change occurs.

38. In the experiment on photosynthesis students were instructed to cover a portion of a leaf of a destarched plant with opaque paper as shown.



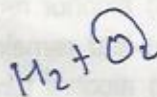
'A' covered one of the leaves with red strip, 'B' covered with green, 'C' covered with blue, 'D' with black. When the starch test was done on the leaves after four hours, the result showed no starch in :

- (a) the portion covered with red, green and blue strips.  
 (b) the portion covered with green strips.  
 (c) the portion covered with black and blue strips.  
 (d) any of the covered portions.

39. In the sketch of stomatal apparatus which of the following is missing?



- (a) Cell membrane of the cells      (b) Cell wall  
(c) Nuclei of the guard cells      (d) Chloroplast in the guard cells
40. In the following set-up, it was observed that water from the beaker has not risen into the delivery tube. This is because :



- (a) The set-up is not airtight.  
(b) The beaker has coloured water.  
(c) Carbon dioxide is not being absorbed.  
(d) No oxygen is available to seeds for respiration.
41. A star shaped figure was cut out in the black strip used for covering the leaf of a detached plant to demonstrate that light is necessary for photosynthesis. At the end of the experiment when the leaf was tested for presence of starch, the star shaped figure was found to be :
- (a) Green      (b) Colourless  
(c) Blue black      (d) Brown
42. In the experiment  $CO_2$  is given out during respiration, there is rise of water level in the bent tube, because :
- (a) Concentration difference  
(b) Diffusion  
(c) Creation of partial vacuum  
(d) All of the above