

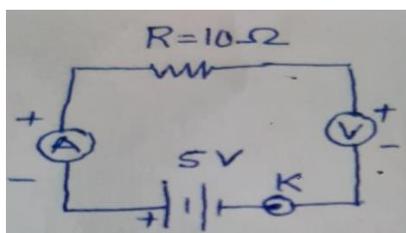
DELHI PUBLIC SCHOOL, JAMMU
SESSION-2019-2020
PREBOARD-II (ASSIGNMENT)

CLASS-X
SUBJECT-SCIENCE

MM-80 MARKS
TIME-3HRS

- Q1. Why is decomposition reaction called opposite of combination reaction?
Q2. How does the concentration of H_3O^+ ions get affected, when a solution of an acid is diluted?
Q3. Read the paragraph and answer the following .

A student during a practical exam connects various components as shown in the circuit diagram. His aim is to draw graph between current and voltage but he is unable to get readings.



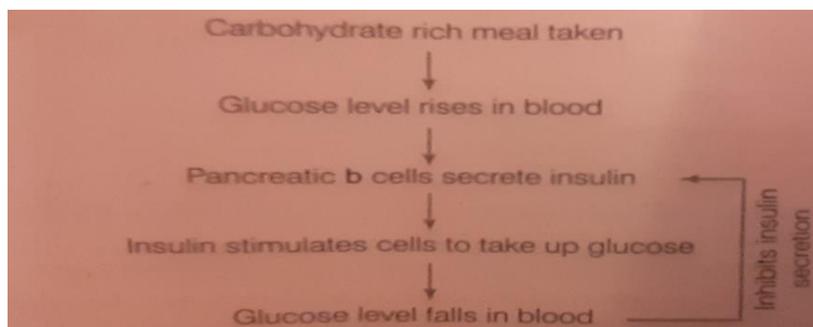
- What according to you is wrong in the circuit?
- Draw the correct circuit diagram.
- Can we interchange key K and ammeter A in the circuit?
- What will be the reading in ammeter A?

Q4. TOPIC: HOMEOSTASIS AND FEED BACK

Homeostasis means keeping the internal chemical environment of the body constant. Hormones help to maintain homeostasis by their integrated action and feed back control. Feed back control is mostly negative and rarely positive.

- NEGATIVE FEED BACK CONTROL**

Blood –glucose Homeostasis



The flow chart of blood glucose feedback mechanism

When we eat a carbohydrate rich meal, blood sugar level is increased. It stimulates pancreas gland to secrete insulin. The latter stimulates the target cells take up extra glucose which is either utilized in cell respiration or is stored as glycogen. In this way, blood glucose level is brought back to normal.

If blood- glucose level falls below normal, insulin secretion by pancreas decreases. This checks further fall in the blood-glucose level. In this manner, insulin maintains blood-glucose homeostasis.

- **POSITIVE FEED BACK CONTROL**

In the positive feed back control, an accumulating biochemical substance increases its own production. For example, at the onset of labour pain in female before child birth, uterine contraction stimulates the release of oxytocin hormone from posterior lobe of pituitary gland. The latter intensifies uterine contractions. The contractions further stimulate the production of oxytocin. The cycle of increase stops suddenly after birth of the baby.

1a. Define homeostasis.

1b. How insulin maintains blood- glucose homeostasis?

1c. Define positive feed back control.

1d. How positive feed back control is different from negative feed back control?

Q5. Tehri Dam project was launched in:

- a) Uttrakhand
- b) Madhya Pradesh
- c) Gujarat
- d) Maharashtra

Q6. The forest resources are managed by:

- a) The local people
- b) The Forest department
- c) Industrialists
- d) Nature enthusiasts

OR

The medicine Quinine is obtained from :

- a) Cinchona
- b) Cassava
- c) Teerminalia
- d) Cedar

Q7. When a piece of copper metal is added to a solution of zinc sulphate

- a) Solution turns into blue
- b) Solution turns into green
- c) Solution turns into yellow
- d) No change takes place.

Q8. Which of the following cannot distinguish ethanol from ethanoic acid?

- a) Blue litmus

- b) Sodium hydroxide
- c) Sodium hydrogen carbonate
- d) Sodium metal

Q9. Quick lime reacts with water to give

- a) $\text{Ca}(\text{OH})_2$
- b) CaCl_2
- c) CaOCl_2
- d) CaO

OR

Electrolysis of water is a decomposition reaction. The mole ratio of hydrogen and oxygen gases liberated during electrolysis of water is:

- a) 1:1
- b) 2:1
- c) 4:1
- d) 1:2

Q10 & Q11. In the following questions, a statement of assertion is given by the corresponding statement of reason. Of the statements, mark the correct answer.

- a) If both the assertion and reason are true and reason is the correct explanation of assertion.
- b) If both the assertion and reason are true, but reason is not the correct explanation of assertion.
- c) If assertion is true but reason is false.
- d) If assertion is false but reason is true.

Q10. Assertion : In a balanced chemical equation, total mass of each element towards reactant side is equal to total mass of the same element towards product side.

Reason : Mass can neither be created nor destroyed during a chemical change.

Q11. Assertion: Inside a solenoid magnetic field is uniform

Reason: Field lines are almost parallel inside a solenoid.

Q12. A fan and tube light of power 100 W and 40 W respectively are operated at 200 V, if R_1 and R_2 be their resistances, then

- a) $R_1 = R_2$
- b) $R_1 < R_2$
- c) $R_1 > R_2$
- d) $R_1 \leq R_2$

Q13. Focal length of plane mirror is:

- a) Zero
- b) Positive
- c) Negative
- d) Infinite

OR

Which of the following is always taken negative as per sign convention:

- a) μ
- b) f
- c) v
- d) R

Q14. Is Snell's law always valid? If no, mention the situation where it is valid.

(SECTION-B)

Q15. a) What is the purpose of electric fuse?

b) Can we connect 5A fuse in a circuit having an electric iron of 1KW operated at 220 V.

Q16. a) Which is the main component of biogas?

b) Why solar cooker is covered with a cover plate?

c) What is the condition for operation of OTE plant?

Q17. a) Which property of human eye makes it possible to focus objects at different distances?

b) What are the advantages of having two eyes?

c) Which type of image is formed by eye lens at retina.

OR

Far point of a myopia eye is 50cm in front of eye. What is the nature and power of lens required to correct it?

Q18. To an aqueous solution of sodium hydroxide, a few drops of phenolphthalein were added. What do you observe? To this solution small amount of dil. HCl was added. What do you observe now? Explain your answer.

Q19. The atomic number of elements A, B, C, D and E are given below:

Element	A	B	C	D	E
Atomic no.	7	10	12	4	19

From the above table, answer the following questions:-

(a) Which two elements are chemically similar?

(b) Which element belongs to 3rd period of periodic table?

(c) Which element among these is a non-metal?

OR

What were the limitations of Newlands' law of Octaves?

Q20. State the reason why carbon can neither form C^{4+} cations nor C^{4-} anions, but forms covalent compounds.

Q21. Why bacteria and fungi called decomposers? List any two advantages of decomposers to the environment?

OR

- a) "Energy in a food chain is unidirectional" Justify this statement.
- b) What are trophic levels in a food chain?

Q22. Distinguish between acquired traits and inherited traits ,giving an example of each. Why are the traits acquired during life time of an individual not inherited?

Q23. a) Which hormone is responsible for the changes noticed in males at Puberty?

- b) Deficiency of which hormone leads to Dwarfism?
- c) Name the hormone which is injected to diabetic patient.

Q24. Give reason for the following:

- a) Glottis is covered by epiglottis.
- b) Ventricles have thicker walls than Atrium.
- c) Cramps caused in our muscles during sudden excess activity.

SECTION-C

Q25. How can ethanol and ethanoic acid be differentiated on the basis of their physical and chemical properties?

OR

An organic compound 'A' of molecular formula $C_4H_8O_2$ has sweet smell. It can be hydrolysed with acid or base. On hydrolysis with dil. sulphuric acid, it gives two compounds 'B' and 'C'. 'B' on oxidation gives compound 'C'. Identify A, B and C. Name the reactions and write the chemical equation of the reactions involved.

Q26. (a) An ore on treatment with dilute hydrochloric acid produces brisk effervescence. What type of ore is this? Write the steps required to obtain metal from the enriched ore.

(b) An ore on heating in air gives sulphur dioxide gas. Name the method in each metallurgical step, that will be required to extract this metal from its ore.

Q27.(a) What is over-loading? Also give two causes of over-loading.

- (b) i) Why axis of coil is perpendicular to the magnetic field in a generator or motor.
- ii) What is the purpose of commutator in a motor?
- iii) What is the purpose of soft iron in armature of a motor.

Q28. (a) Define refraction and refractive index.

(b) Explain refraction through rectangular glass- slab and prove that angle $i =$ angle e

OR

(a) Define 1 dioptre and pole of mirror.

(b) A concave mirror produces three times magnified real image of an object placed 10 cm in front of it. Find the position of image and focal length of mirror.

Q29. Mention the role of the following in digestion:

- a) Pepsin
- b) Saliva

- c) Villi
- d) Bile juice
- e) Hydrochloric Acid.

Q30. Explain double fertilization in plants. Also draw suitable diagram.

OR

- a) What are the functions performed by testes in human beings?
- b) Define fission. Explain briefly how binary fission is different from multiple fission. Also give suitable examples.