

BHARATIYA VIDYA BHAVAN'S V.M.PUBLIC SCHOOL, VADODARA  
SESSION 2017-18  
SAMPLE PAPER- 4

Class :X  
Subject :Science

Max Marks: 80  
Time Allotted: 3hrs

Instructions: All questions are compulsory.

Section A

- Q1 Name and state the rule which gives the direction of force experienced by a current carrying conductor placed in a magnetic field. (1)
- Q2 Mention the function of retina in a human eye. (1)
- Q3 Draw the structural formulae of cyclo hexane and benzene molecule. (2)
- Q4 Give reasons for the following : (2)
- (a) The sun can be seen about two minutes before actual sunrise.
- (b) Danger signals are of red color.
- Q5. Consider the food-chain: Grass → Dear → Lion  
What will happen if lions are removed from the above food chain? (2)
- Q6 What are the environmental consequences of using fossil fuels ? Suggest the steps to minimize the pollution caused by various sources of energy including non-conventional sources of energy. (3)
- Q7 What are magnetic field lines? How is the direction of magnetic field at a point determined? Mention two important properties of magnetic field lines. (3)
- Q8 a) What is meant by scattering of light ? (3)
- b) Draw a diagram of an experimental arrangement for observing scattering of light in colloidal solution. Name the chemical used in this activity.
- c) Why the color of the sky is blue ?
- Q9(a) Why does micelle formation take place when soap is added to water?
- (b) A neutral organic compound X of molecular formula  $C_2H_6O$  on oxidation with acidified potassium dichromate gives an acidic compound Y. Compound x reacts with Y on warming In the presence of  $Con.H_2SO_4$  give a sweet smelling substance X. What are

X, Y and Z? (3)

Q10(a) What is a reactivity series? Describe an activity to develop reactivity series.

(b) Explain any two physical and chemical properties of non metals.

(c) Why is sodium or potassium metal kept immersed in kerosene oil? (3)

Q11(a) What is meant by corrosion? Name any two methods used for the prevention of corrosion.

(b) Suppose you have to extract a metal from its sulphide ore. If the metal is in the middle of the reactivity series, write various steps used in extracting this metal. (3)

Q12 Suggest three ways to maintain a balance between environment and development to survive. (3)

Q13 Explain the importance of DNA copying in reproduction. (3)

Q14 Differentiate between homologous and analogous organs. Give one example of each. (3)

Q15.(i) Write the terrestrial organisms in order of who eats whom and form a chain of at least four steps.

(ii) Write two differences between food chain and food web. (3)

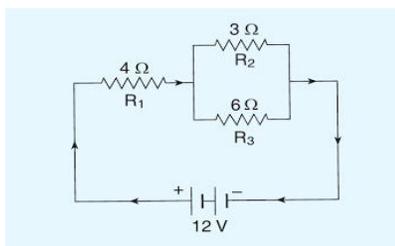
Q16 a) With the help of a circuit diagram, obtain the relation for the equivalent resistance of two resistances connected in parallel. (5)

b) The circuit diagram given below shows the combination of three resistors R<sub>1</sub>, R<sub>2</sub> and R<sub>3</sub>. Find

(i) Total resistance of the circuit.

(ii) Total current flowing in the circuit.

(iii) Potential difference across R<sub>1</sub>.



Q17a) Define principal focus of a spherical mirror and optical centre of a spherical lens. (5)

b) An object 1cm high produces a real image of 1.5cm high when placed at a distance of 15cm from a concave mirror. Find

- (i) The position of the image.
- (ii) Focal length of the concave mirror.

### Section B

Q18 Explain the following reactions with suitable example :

- (a) Precipitation reaction
- (b) Oxidation reaction
- (c) Addition reaction
- (d) Displacement reaction
- (e) Photochemical reaction (5)

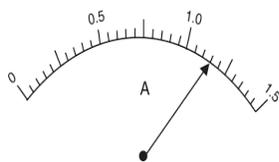
Q19 An element Y is in second period and group 16 of the periodic table :

- (a) Is it a metal or non metal?
- (b) What is the number of valence electrons in its atom?
- (c) What is its valency?
- (d) What is the name of the element?
- (e) What will be the formula of the compound formed by Y with sodium? (5)

Q20 Which hormone is released into blood when its sugar level rises? Name the organ which produces the hormone and its effect on blood sugar level. Also name one digestive enzyme that this organ secretes and the function of this enzyme. (5)

Q21 Draw the internal structure of the heart and explain how blood flows through the heart. (5)

Q22 (a) State the reading of the given ammeter. (2)



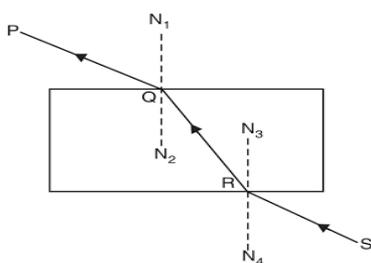
(b) Two resistance X and Y are connected turn by turn :

- (i) In parallel and (ii) in the series. In which case the resultant resistant will be less

than either of the individual resistances ?

Q23(a) What is meant by refraction of light ? (2)

(b) An experiment for tracing the path of a ray of light through a glass slab was setup in the laboratory and ray diagram was drawn as shown below. Identify the refracted ray.



Q24 Differentiate between saponification and esterification. (2)

Q25(a) What is the by-product formed during saponification process?

(b) How does soda ash differ from washing soda? (2)

Q26. How is osmosis different from diffusion? (2)

Q27. What is micropyle? Give its function. (2)

