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10TH SCIENCE QUATERLY EXAM - 2019

IMPORTANT 4 MARKS & 7 MARKS QUESTIONS:

PHYSICS PART LESSON: 1

1. LAWS OF MOTION

- ① What is inertia? what are the types of inertia? give an example for each.
- ② Deduce the equation of a force using Newton's second law of motion.
- ③ State and prove the law of conservation of linear momentum.
- ④ (a) State the universal law of gravitation.
(b) give the applications of universal law of gravitation.
- ⑤ Explain (or) Derive the Relation between g and σ
- ⑥ Problems calculation: Book back Questions: 1, 3, 4

LESSON: 2 OPTICS

- ⑦ Explain the rules for obtaining images formed by a Convex lens with the help of ray diagram.
- ⑧ Differentiate the eye defects: Myopia and Hypermetropia.
- ⑨ what are defects in human eye? Explain with suitable diagram.
- ⑩ (a) what is telescope?

- (b) what are the types of telescope?
(c) Give an example for each type.
(d) write the advantages and Dis advantages of telescope.
- (11) Explain the Structure of human Eye with Suitable diagram.
- (12) Explain the construction and working of a 'Compound Microscope'
- (13) (a) List any five properties of light.
(b) Write the applications of Convex lenses and Concave lenses.
(c) Differentiate: Convex lense and Concave lense
(d) Write any three points of Cartesian Sign Conventions.

(14) Numerical Problems: Book back Questions: VIII in

Ans no: 1, 2

LESSON: 3 THERMAL PHYSICS

- (15) Derive the ideal gas equation.
- (16) Explain the experiment of measuring the real and apparent expansion of a liquid with a neat diagram.
- (17) (a) what is thermal Expansion?
(b) Explain the types of expansion in Solids.

- (18) (a) Distinguish between ideal gas and real gas.
(b) Distinguish between linear and superficial expansion.
(c) State Boyle's law.
(d) State Charles's law.
- (19) Numerical problems: Book back Qns: VII a i, 2

LESSON: 4. ELECTRICITY

- (20) (a) State Joule's law of heating.
(b) Write the Applications of Heating Effect.
- (21) (a) Write the Merits of a LED bulb.
(b) List the Advantages of LED television.
- (22) Explain about domestic circuits.
(Circuit diagram not required)
- (23) (a) Two resistors when connected in parallel give the resultant resistance of 2 ohm; but when connected in series the effective resistance becomes 9 ohm. Calculate the value of each resistance.
(b) Differentiate: Series and Parallel circuits.
(c) A piece of wire of resistance 10 ohm is drawn out so that its length is increased to three times its original length. Calculate the new resistance.

- (24) with the help of a circuit diagram derive the formula for the resultant resistance of three resistances connected. a) in series and b) in Parallel

(25) Numerical Problems: IX - 4th Qns (book back)

CHEMISTRY PARTS

LESSON: 7 ATOMS AND MOLECULES

- ① Give the salient features of "Modern atomic theory".
- ② Derive the relationship between Relative molecular mass and vapour density.
- ③ (a) Differentiate: Atoms and molecules.
(b) Write the different types of ^{of} oxygen and its percentage abundance.
(c) Calculate the number of water molecule Present in one drop of water which weighs 0.18 g.
- ④ (a) State Avogadro's law.
(b) Write the applications of Avogadro's law.

⑤ Calculate the % relative abundance of B-10 and B-11, if its average atomic mass is 10.804 amu

⑥ (a) Find the mass percentage composition of methane (CH_4)

(b) Calculate the % of 'O' in H_2SO_4

(c) Calculate the number of moles in

(i) 27 g of Al (ii) 1.51×10^{22} molecules of NH_4Cl .

⑦ How many grams are there in the following?

(i) 0.2 moles of Hydrogen molecule H_2 ,

(ii) 0.3 moles of chlorine molecule Cl_2 ,

(iii) 0.5 moles of sulphur molecule S_8 ,

(iv) 0.4 moles of Phosphorous molecule P_4

⑧ (a) Calculate the % of each element in Calcium carbonate $[\text{CaCO}_3]$

(b) Calculate the % of Aluminium in $\text{Al}_2(\text{SO}_4)_3$.

⑨ (a) Calculate the number of molecules in 11.2 litre of CO_2 at S.T.P.

(b) Calculate the number of molecules in 54 gm of H_2O ?

LESSON . 8 . PERIODIC CLASSIFICATION ELEMENTS

- (10) The electronic configuration of metal 'A' is 2, 8, 18, 1.
The metal 'A' when exposed to air and moisture forms 'B' a green layered compound.
'A' with $\text{con. H}_2\text{SO}_4$ forms 'C' and 'D' along with water. 'D' is a gaseous compound. Find 'A, B, C & D'.
- (11) Metal 'A' belongs to period 3 and group 13.
'A' in red hot condition reacts with steam to form B. A with strong alkali forms C.
Find A, B, C with reactions.
- (12) 'A' is a reddish brown metal, which combines with O_2 at $< 1370\text{K}$ gives 'B', a black coloured compound. At a temperature $> 1370\text{K}$, 'A' gives 'C' which is red in colour. Find 'A, B, C' with reaction.
- (13) (a) What is Atomic Radius?
(b) What is called Ionisation Energy?
(c) What is Electronegativity?
(d) How does these property vary in periods and in groups?

- (14) (a) what is Corrosion?
(b) Explain the types of Corrosion.
(c) Explain the Methods of preventing Corrosion.
- (15) (a) What is Alloys?
(b) what are the types of Alloys?
(c) Write the uses of Alloys [Copper, Aluminium, and Iron]
- (16) (a) Name (list) the ores of iron?
(b) Write the types and uses of iron?
(c) what is rust? Give the equation for formation of rust.
- (17) (a) what are the ores of Aluminium?
(b) 'A' is Silvery white metal. 'A' combines with O_2 form B at $800^\circ C$, the alloy of 'A' is used in making the aircraft. Find 'A' and 'B'.
(c) Explain the methods of extraction of aluminium from bauxite.

9. SOLUTIONS

- (15) Write a notes on (a) Saturated solution
(b) unsaturated solution (c) Super saturated solution.

- (16) (a) what is solubility?
(b) Explain the various factors affecting solubility.

- (17) (a) which is called Hydrated salts?
(b) Write IUPAC name and molecular Formula of the following:

No	Common Name	IUPAC Name	molecular Formula
1	Blue vitriol		
2	Epsom salt		
3	Gypsum		
4	Green Vitriol		
5	White Vitriol		

- (18) (a) what happen when heated $MgSO_4 \cdot 7H_2O$, and write its equation.

- (b) what happen when heated $CuSO_4 \cdot 5H_2O$, and write its equation.

- (19) (a) what is hygroscopic substances? give an example.
(b) what is deliquescent substances? give an example.
(c) Differentiate: Hygroscopic substances and Deliquescence substances.

- (20) (a) A solution is prepared by dissolving 45g of Sugar in 180g of water. Calculate the mass Percentage of solute.

(20)(b) 3.5 litres of ethanol is Present in 15 litres of aqueous solution of ethanol. Calculate the volume percent of ethanol solution.

(21) Solved Problem:ⁱⁿ II Sum 1, 2, 3

BIOLOGY PART

LESSON: 12 PLANT ANATOMY AND PLANT PHYSIOLOGY

① Explain the structure of Transverse Section of Dicot root [Any One of the questions will ask from Monocot seed and Dicot seed its structure of STEM, ROOT AND LEAF]

②^(a) Explain the structure of chloroplast with a neat labelled diagram.

(b) Write the functions of chloroplast.

③ (a) what is photosynthesis?

(b) Write the equation (reaction) for photosynthesis?

(c) what are the factors affecting photosynthesis?

(d) Explain the light dependent photosynthesis and light independent reactions.

④ (a) Explain the structure of mitochondria with neat labelled diagram.

(b) Write the functions of mitochondria.

⑤ Differentiate : Aerobic respiration and Anaerobic respiration.

(b) Explain the stages of Aerobic respiration.

13. STRUCTURAL ORGANISATION OF ANIMALS

⑥ List out the parasitic adaptations in leech.

⑦ Explain the male reproductive system of rabbit with a labelled diagram.

⑧ How is the circulatory system designed in leech to compensate the heart structure?

⑨ (a) Explain Dentition in Rabbit.

(b) Write the dental formula of Rabbit.

14. TRANSPORTATION IN PLANTS AND CIRCULATION IN ANIMALS.

⑩ (a) What is Transpiration?

(b) What are factors affected by Transpiration?

(c) List the Importance of Transpiration.

⑪ How are arteries and veins structurally different from one another?

⑫ Why are leucocytes classified as granulocytes and agranulocytes? Name each cell and mention its function.

(13) (a) Differentiate between systole and diastole.
Explain the conduction of heart beat.

(b) Enumerate the functions of blood.

(14) (a) what is Plasmolysis?

(b) Explain Apoplast pathway and Symplast pathway.

(15) Explain the types of Blood circulation (Human)

15. NERVOUS SYSTEM

(16) With a neat labelled diagram explain the structure of a neuron.

(17) Illustrate the structure and functions of brain.

(18) Describe the structure of spinal cord.

(19) (a) Classify neurons based on its structure.

(b) Write the functions of cerebrospinal fluid.

(20) HOTS QUESTIONS: BOOK back in IX Q.no: 1, 2

16. PLANT AND ANIMAL HORMONES

(21) (a) what are the types of Auxins?

(b) Write the physiological effects of auxins.

(22) (a) Write the physiological effects of gibberellins.

(b) Bring out any three physiological effects of
- Ethylene.

- (23)^a Name the Endocrine glands present in human?
- (b) Explain briefly any two Endocrine glands.
- (24) Describe an experiment which demonstrates that growth stimulating hormone is produced at the tip of coleoptile.
- (25) HOTS QUESTIONS: BOOK back Qns: in IX
1 & 2 Questions.

17. REPRODUCTION IN PLANTS AND ANIMALS:

- (26) with a neat labelled diagram describe the parts of a typical angiospermic ovule.
- (27) what are the phases of menstrual cycle?
Indicate the changes in the ovary and uterus.
- (28) Write the events involved in the reproduction of a flowering plant.
(a) Discuss the first event and write the types.
(b) Mention the advantages and disadvantages of that event.
- (29) (a) Explain with neat labelled diagram of fertilization in plants.
(b) write the events in Post fertilization changes.

- (30) (a) Explain the structure of Human Sperm with a neat labelled diagram.
(b) why menstrual cycle does not takes place before puberty and during pregnancy?
- (31) Explain the various Contraception methods or techniques to prevent birth control.
- (32) (a) what is vegetative reproduction?
(b) Explain the various vegetative reproduction takes place in plants.

18. HEREDITY

- (33) Explain with example the inheritance of dihybrid cross. How is it different from monohybrid cross?
- (34) (a) Explain the structure of Watson and crick model of DNA.
(b) write the significance of DNA.
- (35) (a) what is mutation?
(b) Explain the various types of mutation.
- (36) Illustrate the structure of chromosome with its neat labelled diagram.
- (37) (a) What are the types of chromosomes based on the position of centromere.
(b) Classify the chromosomes based on function.

③8 Explain briefly Sex determination process in man.

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