MARKS: 75 MARKS   **TIME: 3.00 HRS**

PART – I

CHOOSE THE BEST ANSWER   **12X1=12**

1. In which of the following sport turning of effect of force used -----------?
   a) Swimming   b) Cycling   c) Tennis   d) Hockey

2. Kilowatt hour is the unit of ----------?
   a) Resistivity   b) Conductivity   c) Electric power   d) Electric energy

3. Sound waves do not travel through ----------?
   a) Liquid   b) Solid   c) Gases   d) Vacuum

4. The isotope which cures anaemia-------?
   a) $Na – 24$ b) $I – 131$ c) $Fe-59$ d) $Co – 60$

5. ------ group contains the member of noble gas family.
   a) 15   b) 16   c) 17   d) 18

6. -------- is an important metal to form amalgam.
   a) Ag   b) Au   c) Hg   d) Mg

7. Powdered $CaCo_3$ reacts more rapidly than flaky $CaCo_3$ because of -------?
   a) High concentration   b) Large surface area
   c) High pressure   d) High temperature

8. Physical expression of a gene is called------?
   a) Genotype   b) Homotype   c) Phenotype   d) Metacentric

9. ----- are the largest of leucocytes.
   a) Neutrophil   b) Monocyte   c) Basophil   d) Lymphocyte

10. Nerve cells do not possess -----?
   a) Axon   b) Neurilemma   c) Sarcolemma   d) Dendrites

11. The body of leech has ------------ segments.
   a) 31   b) 32   c) 33   d) 34

12. -------- is not a symptom of CHD.
   a) Atherosclerosis   b) Diabetes   c) Ischemia   d) Plaque

PART --- II

ANSWER ANY SEVEN QUESTION   **7X2=14**

13. MATCH THE FOLLOWING
   A) Dosimeter   **--- 100R**
   B) Delirium   **--- Nuclear fission**
   C) Leukemia   **--- Exposure of X-ray and Gamma ray**
   D) Safe limit   **--- 600 R**

14. Name the acid that renders aluminium passive. Why?

15. What are the different modes used to calculate the number of moles?

16. True (or) False. If false give the correct statement.

   a) **The p^H of rain water containing dissolved gases like SO_3, CO_2, NO_2 will be less than 7**

   b) **Combustion reaction are reversible reaction.**

17. **What are the factors affecting photosynthesis?**
18. **Which gland is called 'Master gland'. why?**
19. **Define triple fusion?**
20. **What are allosomes?**
21. **Why are traffic signals red in colour?**
22. Calculate the linear momentum of the body. A body mass is 10kg and velocity is 20 ms^{-1}?

PART – III

ANSWER ANY SEVEN QUESTION   7X4=28

23. **Give the salient feature of 'Modern atomic theory'?**
24. **(i) Difference between Ideal gas and Real gas?**
   (ii) Difference between concave and convex lens?
25. **(i) Define critical mass? (ii) Write a short note on over loading and short circuiting of domestic circuit?**
26. **(i) State two conditions necessary for hearing an echo?**
   (ii) What are the medical applications of echo?
27. **What is called homologous series and its characteristics?**
28. **(i) Write any four function of Thyroid hormone?**
   (ii) What are the medicinal values of leech?
29. **Explain the Watson and crick model of DNA?**
30. **Define Ethnobotany and write its importance?**
31. **(i) How are stem cells useful in regenerative process?**
   (ii) Mention the function of endosperm?
32. (i)A solution is prepared by dissolving 45g of sugar in 180g of water. Find the mass percentage of solute?

   (ii) What are the advantages of tidal energy?

PART – IV

ANSWER THE ALL QUESTION   3X7=21

33. **State and prove the law of conservation of linear momentum?**

                              (OR)

   (a) How is ethanol manufactured from sugarcane?

   (b) Explain the froth flotation process?

34. **What is nuclear reactor? Explain the essential parts with their functions?**

                              (OR)

   (a) Differentiate Artery and vein?

   (b) What is reflex action? Explain the types of Reflex action?

35. (a) Which is called stress hormone. Why?

   (b) Explain the structure of Human sperm?

(OR)

   (a) Suggest measures to overcome the problems of an alcoholic?

   (b) How will you prevent soil erosion?

PART – I   12X1=12

CHOOSE THE BEST ANSWER

1. The eye defect 'Presbyopia' can be corrected by --------?
   a) Convex lens   b) Convex mirror   c) Bifocal lenses   d) Concave lens

2. If a substance is heated, the change in mass of that substance is -- ----?
   a) Positive   b) Negative   c) Zero   d) None of above

3. The SI unit of Consumption of electric energy----?
   a) Watt   b) Watt hour   c) Watt second   d) kilowatt hour

4. ---------- is an important metal to form amalgam.
   a) Ag   b) Hg   c) Mg   d) Al

5. Which of the following is the Universal solvent?
   a) Acetone   b) Benzene   c) Water   d) Alcohol

6. Which is formed during anaerobic respiration?
   a) Carbohydrate   b) Ethyl alcohol   c) Acetyl CoA   d) Pyruvate

7. What organ attached to the two bronchi?
   a) Nephrons   b) Lungs   c) Larynx   d) Pharynx

8. Who is the 'Father of Modern Physiology'?
   a) Landsteiner   b) Wiener   c) William Harvey   d) Decastello

9. Nerve cells do not possess in --------?
   a) Neurilemma   b) Sarcolemma   c) Axon   d) Dendrites

10. To increase the sugar production in sugarcanes they are sprayed with ------?
    a) Auxin   b) Cytokinin   c) Gibberelins   d) Ethylene

11. Which one of the following is an IUCD?
    a) Copper—T   b) Oral pills   c) Diaphragrm   d) Tubectomy

12. The loss of one or more chromosome in a ploidy is called-----?
    a) Tetraploidy   b) Aneuploidy   c) Euploidy   d) Polyploidy

PART – II

ANSWER ANY 7 QUESTION. Q.NO 22 IS COMPULSORY   7X2=14

13. State Boyle's law?

14. State Rayleigh's law of scattering?

15. What is rust? Give the equation for formation of rust?

16. Write the Molecular formula of (a) Blue vitriol (b) Gypsum (c) Epsom Salt
    (d) Green vitriol

17. Draw and label the structure of oxysomes?

18. Differentiate between Systemic circulation and pulmonary circulation?

19. Name the parts of hind brian?
20. Why are thyroid hormones refered as personality hormone?
21. Mention the function of endosperm?
22. How many electrons are passing per second in a circuit in which three is a current of 5A?

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PART – III   **7X4=28**

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ANSWER ANY 7 QUESTION. Q.NO 32 IS COMPULSORY.
23. Derive the ideal gas equation?
24. Explain about domestic electric circuits?
25. Explain smelting process?
26. List out the parasitic adaptations in leech?
27. Enumerate the function of blood?
28. Describe the structure of spinal cord?
29. Write the physiological effects of gibberellins?
30. (a) Why are family planning methods not adopted by all the people of our country?
(b) Why are the human testes located outside the abdominal cavity? Name the pouch in they are present?
31. Explain the structure of a chromosome?
32. (a)Calculated the coefficient of cubic expansion of a zinc bar. Whose volume increased $0.25m^3$ due to the change in its Temperature of 50 K.
(b) An object of height 3cm is placed at 10cm from a concave lens of focal length 15cm. Find the size of the image?

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PART – IV   **3X7=21**

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ANSWER THE ALL QUESTION.
33. (a). Explain the rules for obtaining image formed by a convex lens with the help of ray diagram?
(b).What is the role of earth wire in domestic circuits?
(c).With the help of a circuit diagram derive the formula for the resultant resistance of three resistance connected in series?
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(OR)

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(a) Difference between hygroscopic and deliquescence?
(b) Write notes on (i) saturated solution (ii) unsaturated solution
(c) The aquatic animals live more in cold region why?
34. (a) Describe and name three stages of cellular respiration that aerobic organisms use to obtain energy from glucose?
(b) Difference between artery and veins?
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(OR)

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(a) Explain the male reproductive system of rabbit with a labeled diagram?

(b) Explain the process of fertilization?

35. (a) What are the phases of menstrual cycle? Indicate the changes in the ovary and uterus?

(b) Why menstrual cycle does not take before puberty and during pregnancy?

(OR)

(a)With a neat labeled diagram explain the structure of a neuron?

(b) How is the structure of DNA organized? What is the biological significance of DNA?

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