

www.Padasalai.Net's Pre-Half Yearly Exam Question Paper

STD: X

MARK: 75

SUB: SCIENCE

TIME: 2.30 H

I. Choose the correct answer

15 x 1 = 15

- The theory of natural selection was discovered by
a) Charles Darwin b) Hugo de Vries c) Gregor Johann mendel d) Jean Baptise Lamarck
- The first Vaccine injected into a just born baby is
a) Oral Polio b) DPT c) DPT and Oral Polio d) BCG
- Unipolar neurons are found in the
a) Brain b) Spinal Cord c) Embryonic nervous tissue d) Adult Nervous tissue
- The flower is important to a plant because it helps in
a) Attracting b) Production of nectar c) Pollination d) sexual reproduction
- Carnivorous animals use these teeth to tear flesh.
a) Incisors b) Canines c) premolars d) molars
- _____ of green plants are called factories of food production
a) Mitochondria b) Chloroplasts c) Endoplasmic reticulum d) Nucleus
- Which is called black gold?
a) Hydrocarbons b) Coal c) petroleum d) ether
- An example of water born disease is _____
a) Scabies b) Dracunculissis c) trachoma d) typhoid
- The gas mixture used by deep sea divers is
a) Nitrogen oxygen b) helium –oxygen c) Neon- oxygen d) none of these
- Vinegar is present in acetic acid. Curd contains _____ acid.
a) Tartaric acid b) citric acid c) maleic acid d) Lactic acid
- Coating the surface of iron with other metal prevents it from rusting. If it is coated with a thin layer of zinc, it is called _____ .
a) Galvanization b) painting c) cathodic protection d) electroplating
- IUPAC name of the first member of alkyne is _____ .
a) Ethene b) ethane c) ethyne d) methane
- The momentum of a massive object at rest is _____ .
a) Very large b) very small c) zero d) infinity
- The potential difference required to pass a current 0.2 A in a wire of resistance 20 ohm is
a) 100 V b) 4 V c) 0.01 V d) 40 V
- An object is placed 25 cm from a convex lens whose focal length is 10 cm. The image distance is
a) 50 cm b) 16.66 cm c) 6.66 cm d) 10 cm

II. Answer any 20 of the following

20 x 2 = 40

16. Here are certain important heredity jargons. Fill in the blanks by choosing a suitable one from the list given (allele,variation,specification,gene,allelomorphs)

- a) _____ are the factors which form the physical basis of inheritance
- b) ___ is the alternate form of the same gene
- c) ___-are the expressions of contrasting pairs of alleles

17. What are variations? Mention their types

18. Match the following by identifying the pair :

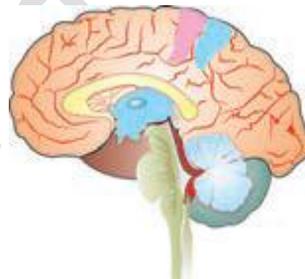
(medicines, fuel, microbes, metabolism, organic acids)

- i) vaccine
- ii) natural gas
- iii) citric acid
- iv) monoclonal antibodies
- v) vitamins

19. Match the following

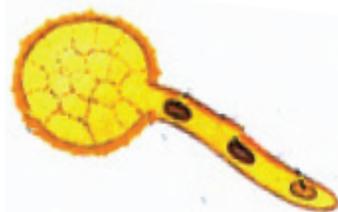
List I (Disease)	List II (symptoms)
A. Amoebiasis	i) Chills and high fever recurring for 3 to 4 days
B.Tuberculosis	ii) Patches on skin and nails with itching sensation
C.Ringworm	iii) Abdominal pain with blood and mucus in stools
D. Malaria	iv) Persistent cough and loss of body weight

20. The diagram is of the human brain. Shade the areas marked A and B in the parts of the brain, corresponding with the function.



- A. Seat of smell
- B. Seat of vision

21. Draw the given diagram and label the following parts: i) Exine ii) Tube nucleus.



22. Mention the two unique characteristics of mammals.

23. What is echolocation? Give an example

24. Write the any four differences between arteries and veins.

25. Match the methods of nutrition of special organs with suitable examples:

Autotrophs	Mycorrhiza	Cuscutta
Parasites	Chlorophyll	Monotropa
Saprophytes	Haustoria	Hibiscus

26. What are saprophytes? Give two examples.

27. What is respiration? Give a balanced equation for aerobic respiration.

28. Show an aquatic food chain using the following organisms

(Small fish, Phytoplanktons, Kingfisher, Zooplanktons)

29. Match the suitable renewable and nonrenewable sources

Sources	A	B	C
Renewable	Coal	Wind	Petroleum
Non-renewable	Hydrogen	Natural gas	Solar energy

30. Find the odd one out:

- a) Bio-alcohol, green diesel, Bio-ethers, petroleum
- b) Cholera, typhoid, Scabies, dysentery

31. A non-renewable resource is a natural resource, if it is replaced by natural process at a rate equal to or faster than its rate of consumption by humans. Read this statement and say whether it is correct or incorrect. If it is incorrect, give the correct statement.

32. Beaker A has sugar mixed with water and Beaker B has vitamin C dissolved in water.

- i) Which solution will scatter light?
- ii) In which beaker does the Brownian movement takes place?
- iii) Name the type of solution that Beaker A and beaker B contain.
- iv) Which of the two solutions is homogeneous?
- v) Identify the beaker that has the particle size 10 \AA to 2000 \AA .

33. Find the concentration of the solution in terms of weight of percent if 20g of common salt is dissolved in 50g of water.

34. Cl' represents Chlorine atom, 'Cl₂' represents Chlorine molecule. List out any two differences between atoms and molecules.

35. Two acids 'A' and 'B' were kept in beakers. Acid 'A' undergoes partial dissociation in water, Whereas acid 'B' undergoes complete dissociation in water.

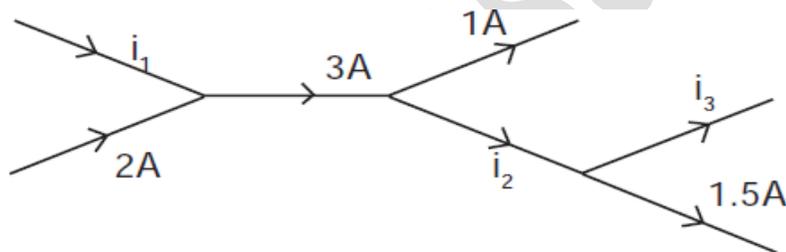
- i) Of the two acids 'A' and 'B', which is weak acid and which is strong acid?
- ii) What is a weak acid? iii) What is a strong acid? iv) Give one example each.

36. When zinc and copper (II) sulphate are heated together, the following redox reaction



- i) What does the word redox stand for? ii) Show how electrons are transferred in the reaction.
- iii) Write the ionic equation for the redox reaction.

37. Iron reacts with con. HCl and con. H_2SO_4 , but it does not react with con. HNO_3 . Justify your answer with proper reasons.
38. Give a single term for each of the following:
- The process of extracting ores from the earth's crust.
 - The rocky impurities associated with the ores.
 - The substance added to the ore to reduce fusion temperature.
 - The process of reducing the roasted oxide ore to metal under molten condition.
 - Noble metals occur in this state
39. C_2H_6O is the molecular formula of two compounds A and B. They have different structural formula
- What is this phenomenon known as?
 - Give the structural formula of A and B.
 - Write down their common and IUPAC names.
40. An object of mass 1 kg is dropped from a height of 20 m. It hits the ground and rebounds with the same speed. Find the change in momentum. (Take $g=10\text{ m/s}^2$)
41. The mats used in gyms and the padding used in sports uniforms are made up of soft substances. Why are rigid materials not used?
42. The figure is a part of a closed circuit. Find the currents i_1 , i_2 and i_3 .



43. Old – fashioned serial lights were connected in a series across a 240V household line.
- If a string of these lights consists of 12 bulbs, what is the potential difference across each bulb?
 - If the bulbs were connected in parallel, what would be the potential difference across each bulb?
44. Which form of energy leads to the least amount of environmental pollution in the process of harnessing and utilization? Justify your answer.
45. The focal length of concave lens is 2m. Calculate the power of lens.
46. A 3 cm tall bulb is placed at a distance of 20 cm from a diverging lens having a focal length of 10.5 cm. Determine the distance of the image.
47. Write down the names of the specified parts of the human eye.
- Dark muscular diaphragm that controls the pupil.
 - The screen where the image is formed by the eye lens.

III. Answer any four questions by choosing one question from each part

4 x 5 = 20

i) Each question carries five marks ii) Draw diagrams whenever necessary.

PART-I

48. a) What is immunity? Write a note on the various types of immunity.
b) Differentiate between night blindness and colour blindness.
49. Describe the structure of a neuron with the help of a neat, labelled diagram,

PART-II

50. Write the two events involved in the sexual reproduction of a flowering plant.
i) Discuss the first event & write the types. ii) Mention the advantages & disadvantages of that event.
51. a) List out the harmful effects of burning coal. b) Write any two principles of green chemistry.

PART-III

52. a) Nitro glycerine is used as an explosive. The equation for the explosive reaction is
$$\text{C}_3\text{H}_5(\text{NO}_3)_3 \rightarrow 12\text{CO}_2 + 10\text{H}_2\text{O} + 6\text{N}_2 + \text{O}_2$$

(Atomic mass of C = 12, H = 1, N = 14, O=16)
i) How many moles does the equation show for i) Nitroglycerine ii) gas molecules produced?
ii) How many moles of gas molecules are obtained from 1 mole of nitroglycerine?
iii) What is the mass of 1 mole of nitroglycerine?
b) Calculate the gram molecular mass of i) NaOH ii) H₂SO₄.
53. a) Ethanoic acid is the member of homologous series with general formula C_nH_{2n+1}COOH.
i) Name the series and give its functional group
ii) Give the molecular formula and common name of ethanoic acid
iii) What is esterification?
iv) Ethanoic acid reacts with carbonates. Which gas is liberated during this reaction?
v) Write the balanced equation for the reaction of ethanoic acid with carbonates.
b) Write the uses of ethanoic acid

PART-IV

54. i) Space Stations are used to study the effects of long-space flight on the human body. Justify.
ii) Two ice skaters of weight 60 kg and 50 kg are holding the two ends of a rope. The rope is taut. The 60 kg man pulls the rope with 20 N force. What will be the force exerted by the rope on the other person? What will be their respective acceleration?
55. An object of 5cm tall is placed at a distance of 10cm from a concave mirror of radius of Curvature 30cm
i) Find the nature, position and size of the image
ii) Draw the ray diagram to represent the above case

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