

Bihar Board Class 10th Science - 2023 Question Paper

Time Allowed :3 Hour 15 mins	Maximum Marks :50	Total Questions :100
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General Instructions

Read the following instructions very carefully and strictly follow them:

1. Candidates must enter his / her Question Booklet Serial No. (10 Digits) in the OMR Answer Sheet.
2. Candidates are required to give their answers in their own words as far as practicable.
3. Figures in the right hand margin indicate full marks.

Section-A

1. Which of the following is a non-renewable source of energy?

- (1) Sun
- (2) Wind
- (3) Petroleum
- (4) Flowing water

2. The actual source of energy of fossil fuel is:

- (1) Nuclear fusion
- (2) Sun
- (3) Moon
- (4) None of these

3. Those which 'produce heat on combustion' are called:

- (1) Engine
- (2) Fuel
- (3) Heater
- (4) None of these

4. Euro-II is related to:

- (1) Air pollution
- (2) Soil pollution

- (3) Water pollution
- (4) None of these

5. Dispersion of white light is produced by:

- (1) Glass slab
- (2) Plane mirror
- (3) Spherical mirror
- (4) Prism

6. The device which directly converts solar energy into electricity is known as:

- (1) Daniel cell
- (2) Leclanche cell
- (3) Solar cell
- (4) None of these

7. Which one of the following is a strong base?

- (1) NaOH
- (2) Cu(OH)₂
- (3) NH₄OH
- (4) Mg(OH)₂

8. What is the chemical formula of dry ice?

- (1) CO
- (2) CO₂
- (3) H₂O
- (4) H₂O₂

9. Which one of the following proteins is responsible for the red colour of blood?

- (1) Heparin
- (2) Haemoglobin
- (3) Thrombin
- (4) Fibrinogen

10. The colour of chlorophyll pigment is:

- (1) Black
- (2) Yellow
- (3) Blue
- (4) Green

11. The hardest part of the teeth is:

- (1) dentine
- (2) enamel
- (3) pulp cavity
- (4) canine

12. Which of the following is necessary in the synthesis of thyroxine hormone?

- (1) Chlorine
- (2) Iodine
- (3) Manganese
- (4) Iron

13. Which is an example of a decomposer?

- (1) Cow
- (2) Fungus
- (3) Tiger
- (4) Grass

14. Which is the main source of energy on earth?

- (1) Coal
- (2) Wood
- (3) Water
- (4) Sun

15. Which of the following is/are a part of environment?

- (1) Atmosphere
- (2) Hydrosphere

- (3) Lithosphere
- (4) All of these

16. How many trophic levels are there in a forest ecosystem?

- (1) 1
- (2) 2
- (3) 3
- (4) 4

17. The reaction in which ions are exchanged is called:

- (1) displacement
- (2) double displacement
- (3) combination
- (4) precipitation

18. Which of the following equations is *not* balanced?

- (1) $2\text{H}_2 + \text{O}_2 \rightarrow 2\text{H}_2\text{O}$
- (2) $2\text{KClO}_3 \rightarrow 2\text{KCl} + 3\text{O}_2$
- (3) $\text{H}_2 + \text{Cl}_2 \rightarrow 2\text{HCl}$
- (4) $\text{Pb}(\text{NO}_3)_2 \rightarrow \text{PbO} + \text{NO}_2 + \text{O}_2$

19. The pH value of any neutral solution is:

- (1) 0
- (2) 4
- (3) 7
- (4) 14

20. Which of the following is a natural indicator?

- (1) Phenolphthalein
- (2) Turmeric
- (3) Methyl orange
- (4) None of these

21. What is the chemical formula of washing soda?

- (1) $\text{Na}_2\text{CO}_3 \cdot 7\text{H}_2\text{O}$
- (2) $\text{Na}_2\text{CO}_3 \cdot 5\text{H}_2\text{O}$
- (3) $\text{Na}_2\text{CO}_3 \cdot 10\text{H}_2\text{O}$
- (4) $\text{Na}_2\text{CO}_3 \cdot \text{H}_2\text{O}$

22. Which of the following is a heterogeneous compound?

- (1) Chalk
- (2) Limestone
- (3) Marble
- (4) Plaster of Paris

23. The hardest natural substance is:

- (1) Iron
- (2) Gold
- (3) Silver
- (4) Diamond

24. Which of the following ions can turn red litmus paper blue?

- (1) H^+
- (2) OH^-
- (3) O^{2-}
- (4) None of these

25. Fruit-ripening hormone is:

- (1) Ethylene
- (2) Auxin
- (3) Gibberellin
- (4) Cytokinin

26. Mushroom is:

- (1) A saprophyte
- (2) A parasite

- (3) An autotroph
- (4) An algae

27. The molecular formula of ozone is:

- (1) O₂
- (2) O₃
- (3) O₄
- (4) O₅

28. Which mode of nutrition is found in fungi?

- (1) Autotrophic
- (2) Holozoic
- (3) Saprophytic
- (4) None of these

29. The flow of energy in an ecosystem is:

- (1) Unidirectional
- (2) Bidirectional
- (3) Multidirectional
- (4) Cyclic

30. How many chambers are found in human heart?

- (1) 1
- (2) 2
- (3) 3
- (4) 4

31. According to evolutionary view, we are more similar to:

- (1) Chimpanzee
- (2) Spider
- (3) Orangutan
- (4) Bacteria

32. Which one of the following reactions occurs in the formation of curd from milk?

- (1) Dissociation
- (2) Fermentation
- (3) Excretion
- (4) Photosynthesis

33. Which of the following lenses is called diverging lens?

- (1) Concave lens
- (2) Convex lens
- (3) Convex lens and concave lens
- (4) Bifocal lens

34. Which colour has maximum wavelength in visible light?

- (1) Yellow
- (2) Violet
- (3) Red
- (4) Green

35. To increase the value of the resistance, resistors should be connected in:

- (1) Series
- (2) Parallel
- (3) Both (A) and (B)
- (4) None of these

36. Which instrument does not have a positive (+) and a negative (-) sign?

- (1) In voltmeter
- (2) In ammeter
- (3) In electric cell
- (4) In coil

37. A converging beam is incident on a plane mirror. The reflected beam will be:

- (1) Diverging
- (2) Converging

- (3) Parallel
- (4) None of these

38. The SI unit of magnetic flux is:

- (1) Watt
- (2) Joule
- (3) Weber
- (4) Newton

39. There are 20 divisions between the zero (0) and 2A number of an ammeter. What is the least count of the ammeter?

- (1) 0.01 A
- (2) 0.1 A
- (3) 0.001 A
- (4) 2 A

40. If several resistances are parallel, their equivalent resistance will be:

- (1) More than each resistance
- (2) Less than each resistance
- (3) Equal to each resistance
- (4) None of these

41. The pores of the stomata are surrounded by which of the following?

- (1) Cuticle
- (2) Guard cells
- (3) Lenticels
- (4) None of these

42. Which gas is liberated during respiration?

- (1) O_2
- (2) SO_2
- (3) NO_2
- (4) CO_2

44. What is liberated by complete oxidation of glucose?

- (1) Only CO₂
- (2) Only energy
- (3) Only H₂O
- (4) All of these

45. What type of membrane is the cell membrane?

- (1) Permeable
- (2) Impermeable
- (3) Semi-permeable
- (4) None of these

46. Full form of ATP is:

- (1) Adenine thymine phosphate
- (2) Adenine triphosphate
- (3) Adenosine triphosphate
- (4) Adenine thymine diphosphate

47. Which solution is used to test the presence of starch?

- (1) Iodine
- (2) Safranin
- (3) Eosin
- (4) Methylene blue

48. Rate of photosynthesis is dependent on which factors?

- (1) Properties of light
- (2) The amount of light
- (3) Both (A) and (B)
- (4) None of these

49. What is the common name of CaOCl₂?

- (1) Calcium chloro oxide

- (2) Calcium oxy oxide
- (3) Bleaching powder
- (4) Calcium chloride

50. Iodized salt is:

- (1) $\text{NaCl} + \text{KIO}_3$
- (2) $\text{NaCl} + \text{KI}$
- (3) both (A) and (B)
- (4) none of these

51. The alloy consisting of 90% Cu and 10% Sn is named as

- (1) Solder
- (2) Brass
- (3) German silver
- (4) Bronze

52. How many bonds are there between two atoms of one molecule of oxygen gas?

- (1) 1
- (2) 2
- (3) 3
- (4) No bond

53. What is Philosopher's wool?

- (1) ZnO
- (2) ZnS
- (3) ZnCl_2
- (4) ZnSO_4

54. The sodium salts of higher fatty acids are called

- (1) Rubber
- (2) Plastic
- (3) Soap
- (4) Detergent

55. Which of the following is a symbol of carbonyl group?

- (1) $-\text{CHO}$
- (2) $-\text{COOH}$
- (3) CO
- (4) $-\text{O}-$

56. Which of the following organic compounds is an alkyne?

- (1) Ethene
- (2) Methane
- (3) Acetylene
- (4) Chloroform

57. The focal length of which mirror is taken as negative according to the convention of signs?

- (1) Plane mirror
- (2) Concave mirror
- (3) Convex mirror
- (4) None of these

58. Where is the object placed to form a magnified virtual image in a concave mirror?

- (1) Between focus and pole
- (2) Beyond centre of curvature
- (3) At focus
- (4) Between centre of curvature and focus

59. How many laws of refraction of light are there?

- (1) 1
- (2) 2
- (3) 3
- (4) 4

60. What is the value of refractive index of a medium?

(1) $\frac{\sin i}{\sin r}$
(2) $\frac{\sin r}{\sin i}$
(3) $\sin i + \sin r$
(4) $\sin i \times \sin r$

61. What is the S.I. unit of power of lens?

(1) cm^{-1}
(2) m
(3) cm
(4) Dioptre

62. The magnification (m) in a concave lens is equal to:

(1) uv
(2) $\frac{u}{v}$
(3) $\frac{v}{u}$
(4) $u + v$

63. What is the refractive index of diamond?

(1) 1.42
(2) 1.32
(3) 2.24
(4) 2.42

64. A prism is bounded by how many surfaces?

(1) 2
(2) 3
(3) 4
(4) 5

65. The atomic number of potassium is 19. What is the valency?

(1) 1
(2) 2

- (3) 3
- (4) 4

66. What is the general formula of an alkane?

- (1) C_nH_{2n}
- (2) C_nH_{2n+2}
- (3) C_nH_{2n-2}
- (4) None of these

67. What is the atomic number of fluorine?

- (1) 9
- (2) 19
- (3) 29
- (4) 39

68. A solution turns red litmus into blue. The pH value of this solution would be:

- (1) 7
- (2) More than 7
- (3) Less than 7
- (4) None of these

69. What is the atomic weight of oxygen?

- (1) 8
- (2) 12
- (3) 16
- (4) 18

70. Bauxite is an ore of which of the following metals?

- (1) Hg
- (2) Fe
- (3) Al
- (4) Zn

71. The correct order of reactivity of metals is

- (1) Na > Zn > Mg > Cu
- (2) Na > Mg > Cu > Zn
- (3) Mg < Na < Zn < Cu
- (4) Na > Mg > Zn > Cu

72. $\text{Fe}_2\text{O}_3 + 2\text{Al} \rightarrow \text{Al}_2\text{O}_3 + 2\text{Fe}$ is which of the following types reaction?

- (1) Combination
- (2) Decomposition
- (3) Displacement
- (4) Double displacement

73. Carbon combines with hydrogen to form

- (1) aqua regia
- (2) halogen
- (3) hydrocarbon
- (4) ionic compound

74. Boron and aluminium belong to which group of elements in periodic table?

- (1) 10
- (2) 17
- (3) 13
- (4) 3

75. Which pigment makes the colour of urine yellow?

- (1) Chromoplast
- (2) Urochrome
- (3) Chloroplast
- (4) Leucoplast

76. The tiger is a consumer of

- (1) first trophic level
- (2) second trophic level

- (3) third trophic level
- (4) none of these

77. Bile juice is secreted by

- (1) small intestine
- (2) liver
- (3) pancreas
- (4) duodenum

78. The forelimbs of man, cat and bat are

- (1) homologous organ
- (2) analogous organs
- (3) vestigial organ
- (4) none of these

79. Which of the following is an example of regeneration?

- (1) Hydra
- (2) Frog
- (3) Cow
- (4) None of these

80. The genic constitution of an individual organism is called

- (1) genotype
- (2) phenotype
- (3) variation
- (4) heredity

Section-B

1. What is the source of energy of the Sun?

2. What is nuclear fission?

3. How does a light ray proceed in a lens? Show by a diagram.