MAR 2008

1327

Register Number | | | | | | |

SCIENCE

(English Version)

Time Allowed : $2\frac{1}{2}$ Hours] [Maximum Marks : 100

PART – I

(Marks : 20 × 1 = 20)

N.B. : i) Answer *all* the questions.

ii) Choose and write the correct answer.

iii) Each question carries one mark.

1. Kepler's first law of planetary motion is also called

   a) Law of periods
   b) Law of areas
   c) Law of orbits
   d) Law of distances.

2. Latent heat of ice has the value

   a) 80 J/kg
   b) $3{\cdot}34 \times 10^5$ J/kg
   c) $22{\cdot}57 \times 10^5$ J/kg
   d) 540 J/kg.

3. The boiling point of water inside the pressure cooker is

   a) 100° C
   b) 0° C
   c) 120° C
   d) –120° C.

4. Total amount of heat required to melt the solid is

a) $H = ms\theta$

b) $H = ms$

c) $H = mL$

d) $H = m\theta$.

5. The colour which deviates the least during dispersion is

a) green b) violet

c) blue d) red.

6. The primary cell widely used is

a) Leclanché cell b) Daniell cell

c) Dry cell d) Lead-acid accumulator.

7. The radio-isotope used in the treatment of cancer is

a) Radio cobalt b) Radioactive iron

c) Radio iodine d) Radioactive sodium.

8. In a neutral solution

a) $[H^+] = 0$ b) $[OH^-] = 0$

c) $[H^+] = [OH^-]$ d) $[H^+] = [OH^-] = 0$.

9. Bleaching powder is prepared by passing chlorine through

a) quicklime

b) milk of lime

c) dry slaked lime

d) limestone.

10. The oxide that is in maximum portion in cement is

a) SiO_2 b) Fe_2O_3

c) Al_2O_3 d) CaO.

11. Glass is attacked by

a) HCl b) H_2SO_4

c) HF d) HNO_3.

12. The lightest element known is

a) He b) H_2

c) Ar d) Li.

13. Flavivirus causes

a) Filariasis

b) Cholera

c) Dengue fever

d) Malaria.

14. Glycolysis takes place in

a) Cytoplasm

b) Mitochondria

c) Vacuoles

d) Chloroplast.

15. Which of the following is not a stop codon ?

a) UAA b) UAG

c) UAC d) UGA.

16. Transfer of pollen grains from the anther of a flower to the stigma of another flower is known as

a) Autogamy b) Allogamy

c) Dichogamy d) Herkogamy.

17. Excessive appetite leading to increased intake of food is known as

a) Polyurea b) Polydipsia

c) Polyphagia d) Polymorphia.

18. Rheumatic fever is caused by

a) *Streptococcus* b) *Staphylococcus*

c) *E.coli* d) *Vibrio cholerae*.

19. Sound is measured in

a) ampere b) decibel

c) light-year d) pascal.

20. Aquaculture does not include

a) Fresh water culture b) Vermiculture

c) Mariculture d) Brackish water culture.

PART – II

(Marks : 10 × 1 = 10)

N. B. : i) Answer *all* the questions.

ii) Each question carries *one* mark.

iii) Answer should be in a word or in few words or in one line.

21. The raindrops fall slowly. Why ?

22. What is meant by sublimation ?

23. Which transformers are used in door bells ?

24. What is often used to power heart pacemakers ?

25. Complete the following :

$N_2 + 3H_2 \rightleftharpoons$ .....

26. What is considered to be a supercooled liquid ?

27. Formaldehyde reacts with which substance to form urotropine ?

28. Name the vein that takes blood from the digestive tract to the liver.

29. What substance is secreted by the sperm to enter into the egg ?

30. What is meant by Azadirachtin ?

PART – III

(Marks : 15 × 2 = 30)

N. B : i) Answer any *fifteen* questions.

ii) Each question carries *two* marks.

iii) Students should answer the Question Nos. 32 and 38 compulsorily. These two questions are not included in the option.

31. Mention any two applications of Bernoulli's theorem.

32. How much heat must be added to raise the temperature of 100 g of water from 278 K to 368 K ? Specific heat capacity of water = 4180 J $kg^{-1}K^{-1}$.

33. On a rainy day, wet clothes take longer time to dry. Why ?

34. Define critical angle of a medium.

35. State the conditions for total internal reflection.

36. State Maxwell's corkscrew rule.

37. What is known as Radiocarbon dating ?

38. The pH of a solution is 6. What is the concentration of OH^- ions in the solution ?

39. What happens when washing soda is left exposed to air for a long time ?

40. What is annealing of glass ?

41. What are amalgams ? Give example.

42. What happens when sulphur dioxide dissolves in water ? Write the equation of the reaction involved.

43. Why is soap not suitable for washing clothes in hard water ?

44. What is rectified spirit ?

45. What is cerebral malaria ?

46. What is template DNA ?

47. What are phasmids ?

48. What is protogyny ?

49. What are the drugs obtained from stems and wood ?

50. What is Angina ?

51. What is Eutrophication ?

52. Write any *four* species of cultivable fishes.

PART – IV

(Marks : 8 × 5 = 40)

N. B : i) Answer *eight* questions by choosing at least *two* questions from each Group.

ii) Each question carries *five* marks.

iii) Draw diagrams wherever necessary.

GROUP – A

53. Deduce Newton's law of gravitation from Kepler's laws of planetary motion.

54. Describe the construction and working of a compound microscope.

55. Mention the properties of electric lines of force.

56. Explain the essential components of a nuclear reactor.

GROUP – B

57. Explain that formation of HI is a reversible reaction. Give two more examples.

58. Describe Haber process for the manufacture of ammonia.

59. Explain the differences between soaps and detergents and explain their cleansing actions.

GROUP – C

60. How will you demonstrate root pressure ?

61. Explain in detail how chromosomes are classified based on the position of centromeres.

62. Draw a labelled diagram of an egg of hen.

63. Give an account of the advantages of social forestry.

64. Explain in detail the different types of dialysis.