SCIENCE

(English Version)

(New Syllabus)

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 answers.

iii) Each question carries *one* mark.

1. In the oblique projection, a projectile reaches the maximum height in 4 seconds. Its time of flight is

a) 4 seconds   b) 2 seconds

c) 8 seconds   d) 39·2 seconds.

2. When water solidifies to ice

a) heat is absorbed

b) heat is released

c) temperature increases

d) no change in temperature.

[Turn over

3. If a bimetallic strip of brass and iron is heated, then it bends in such a way that brass is in the outer side and iron is in the inner side of the bent curve. This shows that

   a) brass expands less than iron

   b) brass expands more than iron

   c) brass is heated strongly than iron

   d) iron is heated strongly than brass.

4. When an impurity is added to ice, the melting point of ice

   a) increases   b) decreases

   c) remains the same   d) cannot be found.

5. Which of the following are primary colours ?

   a) Red, Green and Blue   b) Red, Cyan and Blue

   c) Blue, Cyan and Magenta   d) Violet, Red and Green.

6. One horsepower equals to

   a) 1000 watts   b) 500 watts

   c) 746 watts   d) 647 watts.

7. When $_{92}U^{238}$ emits an alpha particle the new element formed has the mass number

   a) 90   b) 234

   c) 93   d) 238.

8. Which is used as the catalyst in the Haber process ?

   a) Iron   b) Molybdenum

   c) Conc. Sulphuric acid   d) Calcium oxide.

9. The chemical name of the bleaching powder is

   a) calcium chloride

   b) calcium hypochlorite

   c) calcium oxychloride

   d) calcium chlorate.

10. Concentrated solution of sodium chloride is called

   a) saline water

   b) sterilized water

   c) brine

   d) mineral water.

11. The setting of Plaster of Paris is catalysed by adding

   a) sodium chloride

   b) sodium hydroxide

   c) sodium carbonate

   d) sodium bicarbonate.

12. The most common ore of Aluminium is

   a) Cryolite

   b) Bauxite

   c) Feldspar

   d) Haematite.

13. Blood platelets help in

   a) immunity

   b) gaseous transport

   c) blood clotting

   d) acid-base balance.

14. Bacteria was discovered by

   a) Robert Koch

   b) Robert Hooke

   c) A. V. Leeuwenhoek

   d) Louis Pasteur.

15. Bacteriophage is a

a) bacterium   b) virus

c) protozoa   d) fungus.

16. The cyclic events that take place in a rhythmic fashion during the reproductive period of a woman's life is

a) Reproductive cycle   b) Menstrual cycle

c) Rhythmic cycle   d) Growth period.

17. Marasmus is caused by

a) carbohydrate deficiency   b) protein deficiency

c) vitamin deficiency   d) drug addiction.

18. Active immunization is known as

a) antigen   b) antibody

c) vaccination   d) immunoglobulin.

19. Sound is measured in

a) ampere   b) decibel

c) light year   d) pascal.

20. Which of the following helps in soil improvement as they make vertical burrows ?

a) Lampito mauritii

b) Octochaetona thurstoni

c) Spirulina

d) Porphyra.

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. Due to which force do the raindrops assume spherical shape ?

22. Which volatile liquid is used in refrigerator ?

23. How do you convert a galvanometer into a voltmeter ?

24. Why cannot *X*-rays be deflected by electric and magnetic fields ?

25. Why is chillness felt when baking soda is touched with wet hand ?

26. What is the need to use baking powder as an additive in foodstuff ?

27. Which carboxylic acid is present in the sting of red ant ?

28. What is an intact virus known as ?

29. Through which part does the pollen tube enter the embryo sac ?

30. Who is regarded as the father of Indian Green revolution ?

PART – III

(Marks : 15 × 2 = 30)

N. B : i) Answer 15 questions.

ii) Each question carries *two* marks.

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

31. Is it safe for a person standing very close to the platform in a railway station when a fast train passes ? Explain.

[Turn over

32. Calculate the amount of heat energy required to raise the temperature of 0·100 kg of iron from 283 K to 483 K. Specific heat capacity of iron is 480 J kg^{-1} K^{-1}.

33. What is the principle used in pressure cooker ?

34. State Snell's law of refraction of light.

35. Distinguish between real and virtual images.

36. State Fleming's left hand rule.

37. Write any two properties of electromagnetic waves.

38. The hydrogen ion concentration of a solution is 1×10^{-4} mol L^{-1}. Find the hydroxide ion concentration of the solution.

39. Why is gypsum added to cement ?

40. Give any two uses of Plaster of Paris.

41. What is an alloy ? Give an example.

42. What is vulcanisation ?

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

44. Define functional group.

45. Differentiate between plant virus and animal virus.

46. What is mutation ?

47. Define Biotechnology.

48. Draw and label the internal structure of coconut fruit.

49. Write any two uses of Vinca Rosea.

50. What is meant by non-communicable disease ?

51. Define Social forestry.

52. Mention any four blood group systems.

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 the diagrams wherever necessary.

GROUP – A

53. Show with a diagram that the path of a projectile is a parabola.

54. Describe the experiment to determine the focal length of a convex lens by u-v method.

55. Explain the construction and working of an A.C. generator.

56. i) Define nuclear fusion.

ii) Compare nuclear fission with nuclear fusion.

GROUP – B

57. i) Define the rate of chemical reaction.

ii) Name two strong acids and two strong bases.

iii) Define pH.

58. Tabulate any five differences between metals and non-metals.

59. How is soap prepared ? What are the advantages of detergents over soaps ?

GROUP – C

60. Explain the nervous system of frog with a suitable diagram.

61. Explain the structure of chromosome with diagram.

62. What are the different types of pollination ? Describe them.

63. Describe the methods of rain water harvesting.

64. Explain a simple method of Vermi composting.