ALPHA +1, +2 SCIENCE INTEGRATED HIGHER SECONDARY SCHOOL

SCREENING EXAMINATION FOR HSE 2020-21

Duration   : **2 Hrs**

Maximum Marks : 100

➢ *PART - 1*

(Each quesion carries 1 mark)

Total Questions

Part 1   **: 80**

Part 2   **: 20**

Total Marks   **: 100**

➢ **SUBJECTS**   (*BASED ON 10th SYLLABUS*)

♦ **Physics**   **- 20 questions**

♦ **Chemistry**   **- 20 questions**

♦ **Mathematics** **- 20 questions**

♦ **Biology**   **- 20 questions**

➢ *PART - II ENGLISH*

➢ *COMPREHENSIVE ESSAY*

(Each question carries 10 marks)

Total Questions : 2

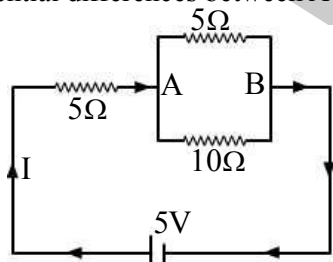**Total marks**   **: 20**

PART - 1

PHYSICS

1. Which colour is at the lower end of visible spectrum, which is formed by passing white light through an equilateral prism.
   Ans :

2. Sun appears reddish during sunrise because of
   Ans :

3. A convex lens is distinguished from a concave lens by the property of
   Ans :

4. Ozone layer absorbs
   Ans :

5. The frequency of AC mains in India is
   Ans :

6. A dynamo
   Ans :

7. Which one of the following is a non conventional source of energy
   Ans :

8. To view a full size image of a person ,the minimum size of plane mirror required is equal to
   Ans :

9. Critical temperature of mercury ?
   Ans :

10. Find the currect drawn by the battery and the potential differences between A and B

    Ans :

11. SI unit of magnetic field is
    Ans :

12. The best material to make permanant magnet is
    Ans :

13. Which of the following is a step up transformer
    Ans :

14. You are given water,mustard oil,glycerine and kerosene.In which of these media,a ray of light incident obliquely at same angle would bend the most ?
    Ans :

15. What is the equivalent resistance between any two vertex of a triangle if the sides of the triangle are of equal resistance?
    Ans :

16. Direction of induced current is given by
    Ans :

17. Foul smelling of LPG is due to
    Ans :

18. Hydrogen bomb is based on
    Ans :

19. The main constituent of biogas is
    Ans :

20. The laws of reflection hold good for
    Ans :

CHEMISTRY

21. The Chemical reaction:
    $$HNO_3 + KOH \rightarrow KNO_3 + H_2O$$
    is an example of
    Ans :

22. The formula of rust is
    Ans :

23. In the reaction,
    $$SO_2(g) + 2H_2S(g) \rightarrow 2H_2O(l) + S(s)$$
    the reducing agent is
    Ans :

24. When in the blue solution of copper sulphate, zinc strip is dipped,after some time the colour changes to:
    Ans :

25. The pH of a solution is 3. When its pH changes to 5, then H^+ ion concentration
    Ans :

26. Plaster of paris is:
    Ans :

27. The substances having pH more than 7 are
    (i) common salt   (ii) washing soda
    (iii) vineger   (iv) sodium hydroxide
    Ans :

28. The acid obtained from curd is
    Ans :

29. .... are alloys of Iron, Aluminium, Nickel and Cobalt.
    Ans :

30. The liquid metal is:
    Ans :

31. A metal which does not liberate hydrogen gas on reaction with acids is
    Ans :

32. Complete the reaction:
    $Mg(s) + H_2SO_4(aq) \rightarrow$
    Ans :

33. Which of the following formula represents alkenes ?
    Ans :

34. The functional group in an alcohol is?
    Ans :

35. The main constituent of LPG is
    Ans :

36. IUPAC name of the first member of homologous series of ketones is
    Ans :

37. Which of the following sets of elements do not belong to the same group?
    Ans :

38. There are ......periods in the modern periodic table.
    Ans :

39. Which of the following have equal number of electrons ?
    Ans :

40. Which of the following is most non -metallic element?
    Ans :

MATHEMATICS

41. The product of a non- zero rational and an irrational number is :
    Ans :

42. Zeroes of the polynomial $p(x) = 2x^2 - 9 - 3x$ are
    Ans :

43. The sum and product of zeroes of the quadratic polynomial are -5 and 3 respectively , then the quadratic polynomial is equal to
    Ans :

44. If $(6,k)$ is a solution of the equation $3x + y -22 = 0$, then the value of k is :
    Ans :

45. Graphically, the pair of equations :
    $6x - 3y + 10 = 0$
    $2x - y + 9 = 0$
    represents two lines which are :
    a. intersecting at exactly one point
    b. intersecting at exactly two points
    c. Coincident
    d. parallel
    Ans :

46. The sum of the roots of the equation $x^2 -6x + 5 = 0$ is
    Ans :

47. The sum of 10 terms of the A.P 2, 7, 12 , ... is :
    Ans :

48. The sum of first 20 odd natural numbers is :
    Ans :

49. The distance between P ($10 \cos\theta, 0$) and Q ($0, 10 \sin\theta$) is :
    Ans :

50. The mid - point of the line segment joining the points A (-2, 8) and (-6, -4) is :
    Ans :

51. If $\sin A = 3/5$ the value of $\tan A$ is :
    Ans :

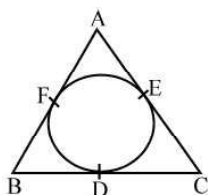52. Value of $\dfrac{2\tan 45^0}{1 + \tan^2 45^0}$ is :
    Ans :

53. A pole 6m high casts a shadow $2\sqrt{3}$m long on the ground, the sun's elevation is :
    Ans :

54. A wire is in the form of a circle of radius 42cm,. It is bent into a square. The side of the square of side is :
    Ans :

55. In the fig, if the semi-perimeter of Δ ABC = 23 cm, then AF + BD + CE is :

    Ans :

56. The diameter of a circle whose area is equal to the sum of the two circles of radii 40 cm and 9cm is
    Ans :

57. A garden roller has circumference of 4m. The number of revolutions ist makes in moving 40 metres is :
    Ans :

58. The surface areas of two spheres are in the ratio 16:9. The ratio of their volumes is :
    Ans :

59. A solid piece of iron in the form of a cuboid of dimensions 49 cm x 33 cm x 24 cm, is moulded to form a solid sphere. The radius of the sphere is :
    Ans :

60. The probability of a sure event is :

BIOLOGY

61. Substances necessary for autotrophic nutrition are:
    Ans :

62. WBCs and RBCs are found in human blood in the ratio of:
    Ans :

63. Site of ultrafiltration of urine formation is:
    Ans :

64. The gap between two neurons is called a:
    Ans :

65. Which plant hormone promotes ripening of fruits?
    Ans :

66. Which of the following acts as a childbirth hormone?
    Ans :

67. Double fertilization is a unique feqture of:
    Ans :

68. Endocrine cells of human testes are called :
    Ans :

69. The normal cells of an organism bears 32 Chromsomes, the number of chromosomes in its germ cells will be :
    Ans :

70. According to the evolutionary theory, formation of a new species is generally due to:
    Ans :

71. Select F_2 phenotypic ratio obtained in a dihybrid cross:
    Ans :

72. Identify the nucleoside from the following:
    Ans :

73. A pair of contrasting expressions is called :
    Ans :

74. The three R's that will help us to conserve natural resources for long term use are :
    Ans :

75. Natures cleaners are:
    Ans :

76. Stomata are surrounded by
    Ans :

77. Chlorofluorocarbons are known to cause :
    Ans :

78. In peas, a pure tall plant (TT) is crossed with a short plant (tt). The ratio of pure tall plants to short plans in F_2 is :
    Ans :

79. In a flower ,the parts that produce male and female gametes are
    Ans :

80. A sexual reproduction in plants which produces seed without fertilization is known as:
    Ans :

PART -II (ENGLISH)

COMPREHENSIVE ESSAY

Attempt essay on the topics given below.

Maximum page limit should be 2.
Each question carries 10 Marks.

1. Causes and effects of Water Pollution.

2. Advantages and disadvantages of Internet.

ANSWER KEY

PHYSICS

1. Violet
2. Scattering of light
3. Convergence
4. UV rays
5. 50 cycles/s
6. Converts mechanical energy into electrical energy
7. Ocean energy
8. Half of height of the person
9. 4.2 k
10. 6A
11. Tesla
12. alnico
13. Input current 2A output current 1.1 A
14. Glycerine
15. 2R/3
16. Fleming's right hand rule
17. Ethyl mercaptan
18. uncontrolled nuclear fusion
19. methane
20. all mirrors irrespective of their shape

CHEMISTRY

21. neutralisation
22. $Fe_2O_3 \cdot x\ H_2O$
23. H_2S
24. Colourless
25. decreases 100 times
26. $CaSO_4 \cdot 1/2\ H_2O$
27. (ii) and (iv)
28. Lactic acid
29. alnicos
30. Mercury
31. Cu
32. $MgSO_4 + H_2$
33. C_nH_{2n}
34. - OH
35. butane
36. Propanone
37. P, S, Cl
38. 7
39. Na^+ and Mg^{2+}
40. Cl

MATHEMATICS

41. always irrational
42. $\frac{\pi}{2}$, 3
43. $x^2 + 5x + 3$
44. 4
45. parallel
46. 6
47. 245
48. 400
49. 10 units
50. (-4, 2)
51. $\frac{3}{4}$
52. $\sin 90^0$
53. 60^0
54. 66 cm
55. 11.5 cm
56. 82 cm
57. 10
58. 64 : 27
59. 21 cm
60. 1

BIOLOGY

61. All of these
62. 1:600
63. Bowman's capsule
64. Synapse
65. Ethylene
66. Oxytocin
67. Angiosperms
68. Interstitial cells
69. 16
70. Accumulation of variations over several generations
71. 9:3:3:1
72. Nitrogen base + Sugar
73. Alleles
74. Reduce, recycle,reuse
75. Decomposers
76. Guard cells
77. Both of these
78. 1 : 1
79. Anther and ovary
80. Parthenogenesis