SCIENCE & RESEARCH TEST-II

FINALS

CODE: 2102

Max. Marks : 60 **Duration : 60 Mins.**

General Instructions :

1. Please find the separate Answer Sheets along with the question paper.
2. Mention your Test Code, Student ID, Name, Class, Section, Contact no. and School Name on the Answer Sheet as per Question Paper and Hall Ticket.
3. This question paper contains VII sections, duration is 60 minutes.
4. Please read the instructions carefully before attempting the question.
5. Answer questions in Answer Sheet only.
6. Don't write or tick anything on the question paper.
7. Use only Black or Blue Ball Point Pen to answer the question in Answer Sheet.
8. Submit only answer sheet(s) to the invigilator.

SECTION - I 10 × 1 = 10m

DIRECTIONS : (1 - 10) – Each question contains statements given in two columns which have to be matched. Statements in column A have to be matched with statements in column B and write in the answer sheet.

Colunm A	Column B
1) Work done by the magnetic force may be	A) zero
2) Work done by the pseudo force may be	B) $\pm$ ve, zero
3) Frictional work	C) Conservative
4) $NaHco_3$	D) Acidic salt

5) $MaSo_4$

6) Change in kinetic

7) Oxalic acid

8) Nicd battery

9) No pollution

10) PbO_2 Cathode

E) Neutral salt

F) PH > 7 (aqueous solution)

G) Non conservative

H) Chargeable battery

I) Lead storage battery

J) Weak electrolyte

K) $H_2 – O_2$ Fuel cell.

L) PH < 7 (aqueous solution)

SECTION - II 10 × 1 = 10 m

DIRECTIONS : (11 - 20) – Read the following statements and write your answer as true or false with reasons or solutions in the answer sheet.

11. Thorium series is also called 4n series.
12. Producer gas is obtained as one of the products of dry distilliation of coal.
13. A transformer is an electrical device that works on the principle of self - induction.
14. The focal length of a given lens depends on the surrounding medium.
15. Aluminium chloride ($AlCl_3$) is a Lewis acid because it can donate electrons.
16. Standard hydrogen electrode is represented as pt (s) H^+ (aq) H_2 (g)
17. Roasting is done for sulphide areas
18. Fungi like bread moulds, yeast and mushroom break down the food material outside the body and then absorb it
19. In the thoracic cavity, the trachea divides into two tubes called bronchioles.

20. The Chipkomovement was the result of grass roots level effort to end the alienation of people from forest.

SECTION - III **10 × 1 = 10m**

DIRECTIONS : (21 - 30) – Complete the following statements with an appropriate word/term to be written in the answer sheet.

21. The SI unit of power of a lens is .....
22. Copper is a preferred material for making wire because of its low .....
23. Magnetic field lines emerge from the ..... pole of a solenoid or a permanent magnet.
24. In our houses we receive AC electric power of ..... with a frequency of .....
25. When an element displaces another element from its compound, a ..... reaction occurs.
26. For the reaction

    $CaCo_3 \rightleftharpoons CaO + CO_2; \Delta n$ ____
27. Anhydrous sodium carbonate is commonly known as .....
28. _____hormone secreted by the posterior lobe of the pituitary gland helps in osmoregulation.
29. _____receptors detects tase and _____ receptors detects smell.
30. The ruptured ovarian follicle is called _____

SECTION - IV **10 × 1 = 10m**

DIRECTIONS : (31 - 40) – Identify the correct answer from the given options and write in the answer sheet.

31. An object is situated at a distance of f/2 from a convex lens of focal length f. Distance of image will be -

    a) + (f/2) b) + (f/3)

    c) + (f4) d) – f

32. The formation of a dipole is due to two equal and unlike point charges placed at a

    a) Short distance b) long distance

    c) above each other d) none of these

33. According to Faraday's law of electrolysis, the amount of decomposition is proportional to

    a) 1/time for which current passes

    b) electrochemical equivalent of the substance

    c) 1/ current

    d) 1/ electrochemical equivalent

34. A magnet is placed vertically on a paper. Then the number of neutral points obtained on the paper is

    a) Zero b) one

    c) two d) three

35. A balanced chemical equation is in accordance with –

    a) avogadro's law

    b) law of multiple proportion

    c) law of conservation of mass

    d) law of gaseous volumes.

36. In the Harber process for the manufacture of ammonia the following catalyst is used

    a) platinized asbestos

    b) iron with molybdenum as promoter

    c) copper oxide

    d) alumina

37. For the gas phase reaction

$2NO \rightleftharpoons N_2 + O_2, \Delta H = -43.5 k Cal$

Which one of the following is true for

$N_2(g) + O_2(g) \rightleftharpoons 2NO(g)$

a) K is independent of T

b) K decreases as T decreases

c) K increases as T decrease

d) K varies with addition of NO

38. 5 g of raisins were placed in distilled water for 24 hours. The weight of soaked raisins was found to be 7g. The correct percentage of water observed by raisins is:

a) 20% b) 25%

c) 40% d) 45%

39. Oxygen is needed for

a) breakdown of glucose

b) breakdown of glucose to release energy

c) obtaining evergy

d) none of the above.

40. A Mendelian experiment consisted of breeding tall pea plants bearing violet flowers with short pea plants suggests that the genetic make up of the tall parent can be depicted as.

a) TTWW b) TTww

c) TtWW d) TtWw.

SECTION - V **12 ×1 = 12m**

DIRECTIONS : (41 – 50) – This section contains multiple choice questions. Each question has 4 choices (a), (b), (c) and (d) out of which ONE OR MORE may be correct. choose the correct answers and write in the answer sheet.

41. The radius of curvature of a plane mirror can't be

    a) zero b) infinite

    c) negative d) finite

42. S_1 and S_2 are two equipotential surfaces on which the potentials are not equal:

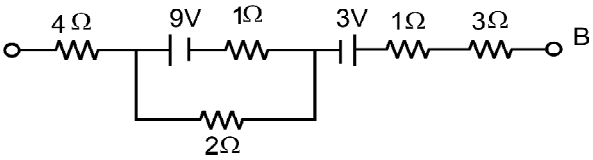
    a) S_1 and S_2 both cannot intersect

    b) S_1 and S_2 both cannot be plane surfaces

    c) in the region between S_1 and S_2 , the field is maximum where they are closest to each other

    d) a line of force from S_1 to S_2 must be perpendicular to both

43. The potential difference between the points A and B in the circuit shown here is 16 volts. Then :



    a) the current through the 2Ω resistance is 3.5 amp

    b) the current through the 4Ω resistance is 2.5 amp

    c) the current through the 3Ω resistance is 1.5 amp

    d) the potential difference between the terminals of the 9V battery is 7V

44. A conducting loop is placed in a uniform magnetic field with its plane perpendicular to the field. An emf is induced in the loop if

    a) it is translated
    b) it is rotated about its axis
    c) it is rotated about its axis
    d) it is expended

45. Which of the following reaction will be favoured at low pressure?

    a) $H_2 + I_2 \rightleftharpoons 2HI$
    b) $N_2 + 3H_2 \rightleftharpoons 2NH_3$
    c) $PCl_5 \rightleftharpoons PCl_3 + Cl_2$
    d) $2SO_3 \rightleftharpoons 2SO_2 + O_2$

46. Aqueous solution of acetic acid contains

    a) CH_3COO^-
    b) H_3O^+
    C) CH_3COOH
    d) H^+

47. Which of the following is (are) non - disposable batteries?

    a) dry cell
    b) mercury cell
    c) lead acid battery
    d) Ni-cd battery

48. Find out the correct sentence:

    a) Hybridisation means crossing between genetically dissimilar plants
    b) Cross between two varieties is called as interspecific hybridisation
    c) Introducing genes of desired character into a plant gives genetically modified crop
    d) Cross between plants of two species is called intervarietal hybridisation.

49. Low visibility during cold weather is due to

    a) formation of fossil fuel
    b) unburnt carbon particles or hydrocarbons suspended in air
    c) lack of adequate power supply
    d) formation of smog

50. Medullated nerve fibre in axon covered by

a) Neurolemma b) Medullary sheath

c) Mitochondria d) None of the above

SECTION - VI 5 × 1 = 5m

DIRECTIONS: (**51 - 55) –** Fill in the blanks in the following passage from words given inside the box.

Friction electrons transferring Negative charge Positive charge

Electric charge is developed due to actual transter of .....51..... When two substances are rubbed against each other, energy is provided from outside to overcome .....52..... between them. This energy is used to remove electrons from one substance and .....53..... them to the other. The transfer takes place from the material in which electrons are held less tightly to the material in which electrons are held more tightly. The material which loses electrons acquires .....54..... and which gains electrons acquires an equal .....55 .....

SECTION - VII 5 × 1 = 5m

DIRECTIONS : (56 – 60) – Each of these questions contains an Assertion followed by reason. Read them carefully and answer the question on the basis of following options. You have to select the one that best describes the two statements and write in the answer sheet.

a) If both **Assertion** and **Reason** are correct and Reason is the **Correct explanation** of Assertion.

b) If both **Assertion** and **Reason** are correct, but Reason is **not the correct explanation** of Assertion.

c) If **Assertion** is **correct** but **Reason** is **incorrect**

d) If **Assertion** is **incorrect** but **Reason** is correct

56. **Assertion:** Hydrogenation is the process of converting an oil into a fat, called vegetable ghee.

    Reason : Hydrogenation is carried out in presence of a catalyst usually finely divided nickel.

57. **Assertion :** 1-Butene on reaction with HBr in the presence of a peroxide produces 1- bromo-butane.

    Reason: It involves the free radical mechanism.

58. **Assertion:** Diamond and graphite are allotropes of carbon

    Reason: Some elements can have several different structural forms while in the same physical state. These differing forms are called allotropes.

59. **Assertion:** Cartilage (protein matrix) and bone (Calcium matrix) are rigid connective tissue.

    Reason: Blood is connective tissue in which plasma is the matrix.

60. **Assertion**: Mitochondria and chloroplasts are semiautonomous organelles.

    Reason: They are formed by division of pre-existing organelles as well as contain DNA but lack protein synthesizing machinery.

SOLUTIONS TO MODEL PAPER - II

SECTION – I

Match the Following

1) → C ; 2) → B ; 3) → G; 4) → D,F;

5) → E, L ; 6) → A; 7) → J ; 8) → H ;

9) → K ; 10) → I

SECTION – II

True / False

11) True	12) False	13) False	14) True
15) False	16) False	17) True	18) True
19) False	20) True		

SECTION – III

Fill in the Blanks

21) dioptre	22) resistivity
23) North	24) 220 v, 50 Hz
25) displacement	26) 1
27) soda ash	28) Antidiuretic
29) Gusturoy, alfactory	30) corpus laterus

SECTION – IV

Multiple Choice Questions

31) d	32) a	33) b	34) b
35) c	36) b	37) b	38) c
39) b	40) c		

SECTION – V

More than one correct answers

41) a, c, d 42) a, c, d 43) a, c, d 44) c, d

45) c, d 46) a, b, c 47) c, d 48) a, c

49) b, d 50) a, b

SECTION – VI

Fill in the Passage

51) electrons 52) Friction

53) transterriing 54) Positive charge

55) Negative charge

SECTION – VII

Assertion & Reason

56. b) If both **Assertion** and **Reason** are correct, but Reason is **not the correct explanation** of Assertion.

57. a) If both **Assertion** and **Reason** are correct and **Reason** is the **Correct explanation** of Assertion

58. a) If both **Assertion** and **Reason** are correct and **Reason** is the **Correct explanation** of Assertion

59. b) If both **Assertion** and **Reason** are correct, but **Reason** is **not the correct explanation** of Assertion.

60. c) If **Assertion** is incorrect but **Reason** is incorrect.