A

SCSS–ST–23
PCB

Date : 02/04/2023   Time : **2.30 Hrs.**   **Marks :** Section-A = 30 + Section-B = 320 = 350

Important Instructions :

1. Immediately fill the particulars on this page of the Test Booklet as well as Answersheet with Black or Blue Ball Pen. *Use of pencil is strictly prohibited.*

2. Do not open this Test Booklet unitl you are asked to do so.

3. This Test Booklet contains of **110** questions.

4. There are two sections in the question paper i.e. **Section–A** and **Section–B**.

5. The **Section–A** contains three parts i.e. *Part-I, Part–II* and *Part-III.*

6. The *Part-I* contains **10** questions of **English.**

7. The *Part-II* contains **10** questions of **Basic Mathematics.**

8. The *Part-III* contains **10** questions of **Mental Ability.**

9. In **Section–A**, each question carries **ONE** mark. There is **no negative** marking system.

10. The **Section–B** contains **THREE** parts i.e. *Part–I, Part–II* and *Part-III.*

11. The *Part-I* contains **40** questions of **Biology.**

12. The *Part-II* contains **20** questions of **Chemistry.**

13. The *Part-III* contains **20** questions of **Physics.**

14. In the **Section–B**, each question carries **4** marks. There is **negative** marking system. For each wrong answer **1 mark will be deducted from obtained marks.**

15. There are four choices for every question, out of which only one choice is most correct.

16. Filling up more than one responses in any question will be treated as wrong response and marks for this will be deducted according to negative system.

17. No candidates is allowed to carry any printed or written textual material, bits of papers, cell phone and any other electronic devices.

18. Rough work is to be done on the space provided in the Test Booklet only.

19. On completion of the test, the candidate must hand over the Answer Sheet to the Invigilator on duty. *However, candidates are allowed to take away this Question Paper with them.*

20. **Do not fold or make any stray marks on the Answer Sheet.**

Name of the Candidate (in Capital letters) : _____

Seat No : In figures

Space For Rough Work

Instruction :

01. Find the word that conveys the same meaning.

    RIVAL

    1) friend   2) partner

    3) associate   4) opponent

Instruction :

02. Select the word that is opposite in meaning.

    MOISTURE

    1) dryness   2) delicate

    3) dampness   4) defect

Instruction :

03. Select from the answer choices given under the sentence to form grammatically correct sentence :

    The drama had many scenes which were so humorous that it was **hardly possible to keep** a straight face.

    1) hardly impossible to keep   2) hardly impossible keeping

    3) hardly impossible for keeping   4) no change

Instruction :

04. Select the pair of words to replace the qustion mark.

    Fuel : Pipes :: ? : ?

    1) Blood : Veins   2) Food : Stomach

    3) Wood : Trees   4) Cars : Expressway

Instruction :

05. Choose the one that can be substituted for the given phrase :

    A person who does not believe in the existence of God

    1) theist   2) heretic

    3) atheist   4) fanatic

Instruction :

06. Find out the correct meaning of the Idiomatic expression :

    The students were *in the blues* when they heard that the examination would not be postponed after all

    1) cheerless and depressed   2) violent and angry

    3) wearing blue badges   4) singing sad songs

Instruction :

07. Choose the word that best completes the sentence.

    Today, the Indian telecom network is the second largest in the world _____ China, which leads this sector.

    1) beside   2) preceeding

    3) earlier   4) after

Instruction :

08. Determine the word which fits well in all.
    i) It differs in that ....
    ii) She lost all .... for him
    iii) He went to the law school out of .... for his father's wishes.
    iv) I .... his judgement.
    1) respect   2) reward
    3) account   4) concern

Instruction :

09. Identify the part that contains an error.
    Economics are/now a days included/as a subject/in most professional colleges.
    1) 1   2) 2
    3) 3   4) 4

10. Ram accused Mohan .... stealing his watch.
    1) with   2) for
    3) of   4) about

Part–II – Basic Mathematics

11. If $a + b + c = 15$ and $a^2 + b^2 + c^2 = 77$ then find value of $ab + bc + ca$ is
    1) 32   2) 28
    3) 74   4) 70

12. 'A' purchased an article for Rs. 96 and sold it to 'B' at a profit of $8\frac{1}{3}\%$. If 'B' sold it at a loss of 5 %, what is B's selling price
    1) 104 Rs   2) 98.80 Rs
    3) 98 Rs   4) 92.50 Rs

13. In what time will the interest on Rs. 3600 at the rate of 10 % be equal to the interest on Rs. 1800 at the rate of $12\frac{1}{2}\%$ in 4 years ?
    1) $1\frac{1}{2}$ years   2) $3\frac{1}{2}$ years
    3) $4\frac{1}{2}$ years   4) $2\frac{1}{2}$ years

14. If $\log 2 + \frac{1}{2}\log x + \frac{1}{2}\log y = \log(x+y)$ then
    1) $x + y = 1$ 2) $x = 2y$
    3) $x = y$ 4) $x - y = 1$

15. If $x - \dfrac{1}{x} = 7$ then value of $x^3 - \dfrac{1}{x^3}$ is

1) 364   2) 243
3) 333   4) 343

16. A car completes a journey of 315 km in $4\dfrac{3}{4}$ hours. The first one-third of the journey was performed at 60 km/hr. Calculate the speed for rest of the journey
    1) 40 km/hr   2) 70 km/hr
    3) 30 km/hr   4) 50 km/hr

17. The value of $2\sin^2 \dfrac{3\pi}{4} + 2\cos^2 \dfrac{\pi}{4} + 2\sec^2 \dfrac{\pi}{3}$ is given by

1) 1   2) 5
3) 10   4) 8

18. Let $D(3, 2)$, $E(-3, 1)$ and $F(4, -3)$ be the mid-points of the sides BC, CA and AB respectively of $\triangle$ ABC. Then vertex A of $\triangle$ ABC is
    1) (10, –6)   2) (–2, –4)
    3) (–4, 2)   4) (5, –3)

19. Find area of the metal sheet required to construct a cylinderical drum without top of height 3.5 metre and radius of the base 1.4 metre
    1) 42.26 m²   2) 42.56 m²
    3) 44.14 m²   4) 36.96 m²

20. Find the area of adjoining figure ABCDE. Given AB| | EC, $AF \perp EC$, $DG \perp EC$
    AF = 10 cm ; AB = 20 cm , EC = 45 cm and DG = 14 cm

1) 325 cm²   2) 640 cm²
3) 460 cm²   4) 300 cm²

Part–III – Mental Ability

21. Find the missing term in each of the following series.

4, 6, 12, 14, 28, 30, ... ?

1) 32　　　　　　　　　　　　　2) 60

3) 62　　　　　　　　　　　　　4) 64

22. Giant : Dwarf : : Genius : ?

1) Wicked　　　　　　　　　　2) Gentle

3) Idiot　　　　　　　　　　　4) Tiny

23. Choose the word which is least like the other words in the group.

1) Copper　　　　　　　　　　2) Zinc

3) Brass　　　　　　　　　　　4) Aluminium

24. In a certain code language, RUSTICATE is written as QTTUIDBSD. How would STATISTIC be written in that code ?

1) RSBUJTUHB　　　　　　　　2) RSBUITUHB

3) RSBUIRSJD　　　　　　　　4) TUBUITUMB

25. Pointing to a lady in the photograph, Shaloo said, "Her son's father is the son-in-law of my mother." How is shaloo related to the lady ?

1) Aunt　　　　　　　　　　　2) Sister

3) Mother　　　　　　　　　　4) Cousin

26. Choose the correct alternative numbers from the given ones that will complete the series.

3, 5, 35, 10, 12, 35 .... , ... ?

1) 19, 35　　　　　　　　　　2) 17, 19

3) 19, 24　　　　　　　　　　4) 22, 35

27. One day, Ravi left home and cycled 10 km southwards, turned right and cycled 5 km and turned right and cycled 10 km and turned left and cycled 10 km. How many kilometers will he have to cycle to reach his home straight ?

1) 10 km　　　　　　　　　　2) 15 km

3) 20 km　　　　　　　　　　4) 25 km

28. If L stands for +, M stands for –, N stands for ×, P stands for ÷, then 14 N 10 L 42 P 2 M 8 = ?

1) 153　　　　　　　　　　　2) 216

3) 248　　　　　　　　　　　4) 251

Space for Rough Work

29. Five children take part in a tournament. Each one has to play every other one. How many games must they play ?

1)   8   2)   10

3)   24   4)   30

30. What is the number of straight lines in the following figure ?

1)   10   2)   12

3)   13   4)   17

Space for Rough Work

Section - B : (Part-I – Biology)

31. Identify A, B, C and D from the given diagram ?

1) A–Annulus, B–Pileus, C–Cup, D–Stipe
2) A–Pileus, B–Gills, C–Annulus, D–Mycelial threads
3) A–Gills, B–Pileus, C–Annulus, D–Stipe
4) A–Stipe, B–Mycelial thread, C–Annulus, D–Cup

32. How many of the following members belongs to kingdom fungi ?

> *Penicillium, Agaricus, Paramoecium, Amoeba, Euglena, Nostoc, Anabaena, Rhizopus*

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

33. **Assertion :** Algae are mainly autotrophic

Reason : Alga is the association of fungi and cyanobacteria

1) Assertion and reason are true and reason is correct explanation of assertion
2) Assertion and reason are true but reason is not correct explanation of assertion
3) Assertion is true but reason is false
4) Both assertion and reason are false

34. Match the column-I with column-II and select the **correct** option.

	Column-I		Column-II
A)	Regeneration	i)	*Spirogyra*
B)	Budding	ii)	*Plasmodium*
C)	Fragmentation	iii)	*Hydra*
D)	Multiple fission	iv)	*Planaria*

1) A–iv, B–iii, C–i, D–ii   2) A–iv, B–i, C–iii, D–ii
3) A–ii, B–i, C–iii, D–iv   4) A–ii, B–iii, C–i, D–iv

35. Match the column-I with column-II and select the **correct** option.

	Column-I		Column-II
A)	G_2 phase	1.	Gap 2 phase
B)	Cytokinesis	2.	Nuclear division
C)	Karyokinesis	3.	Cytoplasmic division

1) B–1, C–2, A–3   2) A–1, C–2, B–3
3) A–3, C–2, B–1   4) A–1, C–3, B–2

36. Which of the following statement is **incorrect** with respect to mitosis ?
   1) In prophase, condensation of basically thin thread like chromosomes start
   2) Nuclear membrane is completely disappears in metaphase
   3) In anaphase, centromere does not split and thereby sister chromatids of each chromosome separate
   4) In telophase, two daughter nuclei are formed in a cell

37. Select **odd** one out with respect to component of phloem :
   1) Companion cells   2) Vessels
   3) Sieve tube elements   4) Phloem fibres

38. Which of the following plant tissue helps aquatic plant leaves and stem to float ?
   1) Companion cells   2) Chlorenchyma
   3) Aerenchyma   4) Xylem parenchyma

39. Which of the following statements are **correct** about flowers ?
   i) Flowers are always bisexual
   ii) Flower is the main sexually reproductive structure in angiosperms
   iii) Ovary after fertilisation developes into fruit
   iv) Flowers may be unisexual
   Options :
   1) i and ii   2) i, ii and iii
   3) ii, iii and iv   4) only iii and iv

40. Which of the following is/are **incorrect** statement/s ?
   A) Sexual reproduction involves the fusion of gametes from two opposite sexes of same or different individuals of same species
   B) Sexual reproduction always involves the fusion of gametes from two different individuals of same species
   C) Embryogenesis is post fertilisation event
   D) Gamete transfer is pre-fertilisation event
   1) A and D   2) B and C
   3) only B   4) only A

41. In Mendel classic experiments on pea plants, he did not use :
   1) Flower position   2) Seed colour
   3) Seed shape   4) Pod length

42. A man who is affected with sickle cell anaemia marries a woman who is carrier of this disorder. What proportion among the following of this couple's progeny will be affected and what proportion will be carrier ?
    1) 0.25 : 0.75
    2) 0.5 : 0.5
    3) 0.1 : 0.9
    4) 0.75 : 0.25

43. Which of the following statement is **not incorrect** with respect to benefits of biotechnology ?
    1) Increase in per hectare yield of crop
    2) Development of slow fruit setting varieties
    3) Maximised disease control expenses
    4) More than one option is correct

44. Match the column-I with column-II and select the **correct** option.

	Column-I		Column-II
1)	White revolution	a)	DDT
2)	Bio-magnification	b)	Cultivation of Honey bees
3)	Apiculture	c)	NKM-16
4)	Pisciculture	d)	Dr. Kurien

    1) 1–d, 2–b, 3–a, 4–c
    2) 1–d, 2–a, 3–b, 4–c
    3) 1–c, 2–b, 3–d, 4–a
    4) 1–d, 2–a, 3–c, 4–b

45. **Assertion :** *Lactobacilli* are anaerobic bacteria
    Reason : They can produce energy without the use of oxygen
    1) Assertion and reason are true and reason is correct explanation of assertion
    2) Assertion and reason are true but reason is not correct explanation of assertion
    3) Assertion is true but reason is false
    4) Both assertion and reason are false

46. Read the following statements and select the **correct** option with respect to Photosynthesis
    A) O_2 released during photosynthesis comes from CO_2
    B) O_2 released during photosynthesis comes from H_2O
    C) During photosynthesis CO_2 is reduced to carbohydrates
    D) During photosynthesis carbohydrates are oxidised to $CO_2 + H_2O$
    Options :
    1) A and B only
    2) B and C only
    3) C and D only
    4) A and C only

47. Which among the following in a food chain, will have the maximum concentration of harmful chemicals in its body due to contamination of pesticides in the soil ?
    1) Grass
    2) Goat
    3) Tiger
    4) Vulture

48. Which of the following step is not involved in the carbon cycle ?
    1) Photosynthesis
    2) Respiration
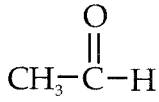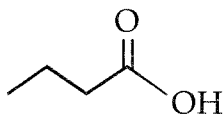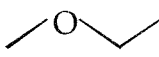   3) Transpiration
    4) Burning of fossil fuels

49. Which of the following statement is **incorrect** about ozone depletion ?

    1) CFCs release 'Cl⁻ 'atom causes degradation of O_3

    2) Cl⁻ atoms act as catalyst

    3) Cl⁻ atom is not consumed in the reaction
    4) Ozone depletion is minimum over the Antarctica region

50. **Assertion :** Sanitary landfills are also not a good method for disposal of solid waste
    Reason : These landfills causes pollution of underground water resources due to seepage of chemicals
    1) Assertion and reason are true and reason is correct explanation of assertion
    2) Assertion and reason are true but reason is not correct explanation of assertion
    3) Assertion is true but reason is false
    4) Both assertion and reason are false

51. Find odd term out on the basis of classification from each group and select the correct option ?
    a) *Spirogyra, Mucor, Agaricus, Penicillium*
    b) *Riccia, Marchantia, Moss, Cycas*
    c) Frogs, Tortoise, Snakes, Crocodile
    d) Cat, Rat, Rabbit, Parrot
    1) *Spirogyra, Cycas,* Frogs, Parrot   2) *Mucor, Riccia,* Tortoise, Rabbit
    3) *Spirogyra, Cycas,* Tortoise, Parrot   4) *Mucor, Cycas,* Frogs, Parrot

52. Every living thing appears to be different from others with respect to appearance and mode of life and maintains its 'own identity'. This phenomenon is known as
    1) Classification   2) Hierarchy
    3) Environmental conservation   4) Biodiversity

53. How many of the following statements are true ?
    i)   Oxidation of food takes place in mitochondria
    ii) All plastids have pigments
    iii) Cellulose is a protein
    iv) Blue green algae are prokaryotes
    v)   The cell wall is freely permeable
    1) One   2) Two
    3) Three   4) Four

54. Match the following and select correct option.

	Column-I		Column-II
A)	Zacharias Jansen	i)	Named protoplasm to the fluid in cell
B)	Robert Hooke	ii)	First observed living cell
C)	Leeuwenhoek	iii)	Discovered dead cell
D)	Johannes Purkinje	iv)	First invented microscope

    1) A–iv, B–i, C–ii, D–iii   2) A–iii, B–i, C–iv, D–ii
    3) A–iv, B–iii, C–ii, D–i   4) A–ii, B–iii, C–iv, D–i

55. Identify the following type of muscle cell given in diagram and select option denoting striated muscle, smooth muscle and cardiac muscle, respectively

   a   b   c

  1)   c, b, a   2)   b, a, c
  3)   a, b, c   4)   b, c, d

56. Which of the following pair is characterised by swollen lips, thick pigmented skin of hands & legs and irritability ?
  1)   Thiamine – Beri Beri   2)   Protein – Kwashiorkar
  3)   Nicotinamide – Pellagra   4)   Iodine – Goitre

57. Which of the following is respiratory disorder caused due to smoking ?
  1)   Asthama   2)   Bronchitis
  3)   Emphysema   4)   Fibrosis

58. Which of the following is correctly matched ?
  1)   Blood cancer – Hemophilia   2)   Inflammation of bronchi–Asthma
  3)   Osteoporosis – Arthritis   4)   Decrease in WBC count – Anaemia

59. **Assertion :** Excretion is the process of removal of metabolic waste materials out of the body
  Reason : Excretion and egestion are one and same processess.
  1)   Assertion and reason are true and reason is correct explanation of assertion
  2)   Assertion and reason are true but reason is not correct explanation of assertion
  3)   Assertion is true but reason is false
  4)   Both assertion and reason are false

60. Choose the correct match.
  1)   Adrenaline – Stimulates adrenal gland
  2)   Luteinizing hormone – Controls menstrual cycle and ovulation
  3)   Glucagon – Controls growth of gonads
  4)   Growth hormone - Regulates water level in the body

61. Identical twins develop from
  1)   One egg, fertilised by one sperm
  2)   One egg, fertilised by two separate sperm cells
  3)   Two eggs, both fertilised by the same sperm cell
  4)   Two eggs, each fertilised by a separated sperm cell

62. Choose the correct sequence of movement of sperms in male reproductive system
    1) Vas efferens – rete testes – vas deferens – epididymis – urinogenital duct– ejaculatory duct
    2) Rete testes –vas efferens–epididymis–vas deferens–ejaculatory duct–urinogenital duct
    3) Vas deferens – rete testes – vas efferens – epididymis – urinogenital duct – ejaculatory duct
    4) Rete testes – vas deferens – vas efferens – ejaculatory duct – epididymis – ejaculatory duct – urinogenital duct

63. The given symptoms related to sexually transmitted disease

    | Chancre on genitals, Alopecia, Rash, Inflammation of Joints , Fever |

    1) Syphilis   2) Gonorrhoea
    3) AIDS   4) Both 1 and 2

64. Which of the following technique from animal husbandry is helpful in pollination and to increase the crop yield ?
    1) Poultry   2) Sericulture
    3) Lac culture   4) Apiculture

65. Note the relationship between the first two words and suggest suitable words in the fourth place
    a. HIV : AIDS : : HB : ....
    b. Typhoid : Salmonella typhi : : Tuberculosis : ....
    c. Pulse polio : Poliomyletis : : DOTs : ....
    d. TB : Communicable : : Cancer : ....
    1) TB, M. Tuberculi, Hepatitis, Noncommunicable
    2) Hepatitis, M. Tuberculi, TB, Noncommunicable
    3) Hepatitis, TB, M. Tuberculi, Noncommunicable
    4) Noncommunicable, TB, Hepatitis, M. Tuberculi

66. Alcohol consumption mainly affects
    1) Excretory system   2) Respiratory system
    3) Digestive system   4) Nervous system

67. Development of which bones in apes started to stand in erect posture and gave rise to evolution of human-like animal ?
    1) Lumbar bones   2) Sacral bones
    3) Thoracic bones   4) Cervical bones

68. Evolution means
    1) Mutation   2) Translocation
    3) Transcription   4) Gradual development

69. Which of the following is world's largest organisation engaged in environmental activities ?
    1) Chipko centre   2) World wildlife fund
    3) Green peace   4) Gandhi peace foundation

70. Green pages of 'Red list' book of IUCN contain the names of
    1) Endangered species
    2) Previously endangered but presently safe species
    3) Vulnerable species
    4) Indeterminate species

Part-II – Chemistry

71. Pairs of isotones among the following are
   1) Ar, Ca
   2) K, Ca
   3) Ca, Sc
   4) Sc, Ti

72. Statement-1 : Petroleum is soluble in water

   Statement-2 : Petroleum is complex mixture of compounds of hydrocarbons
   1) Statement-1 is correct
   2) Statement-2 is correct
   3) Both statements are correct
   4) Both statements are incorrect

73. Match column-I with column-II.

Column-I (Reactants)		Column-II (Name of product formed)	
a)	$CO_2 + H_2O$	p)	Sulphurous acid
b)	$SO_2 + H_2O$	q)	Carbonic acid
c)	$SO_3 + H_2O$	r)	Sulphuric acid

   1) a–q, b–p, c–r
   2) a–r, b–p, c–q
   3) a–p, b–r, c–q
   4) a–r, b–q, c–p

74. Which one of the following damage is caused by Acid rain ?
   1) Acid rain destroys forest
   2) Acid rain kills aquatic animals
   3) Acid rain damages historical monuments
   4) All of these

75. Number of H^+ ions produced in water by H_2SO_4, H_3PO_4 and H_3PO_3 respectively is
   1) 2, 3, 3
   2) 2, 2, 3
   3) 2, 2, 2
   4) 2, 3, 2

76. Select which one is true for electrolysis of dilute table salt solution ?
   1) Volume of gas formed near the cathode is H_2 and is found to be double as that gas formed at anode
   2) Volume of gas formed near the cathode is O_2 and is found to be same as that gas formed at anode
   3) Volume of gas formed near the cathode is O_2 and is found to be $\frac{1}{4}$ th as that gas formed at anode
   4) Volume of gas formed near the cathode is Na(g) and at anode is $Cl_2(g)$

77. Which is not a property of ionic bond ?
   1) Sharing of electron
   2) Electron transfer
   3) Loss of electron
   4) Gain of electron

78. The bonding in ceramics is
   1) Ionic
   2) Metallic
   3) Covalent
   4) Partially ionic and partially covalent

79. Red ink is prepared from
    1) Phenol
    2) Aniline
    3) Congo red
    4) Eosin
80. Which of the following is limestone ?
    1) CaO
    2) $CaCO_3$
    3) $Ca(OH)_2$
    4) NaOH + CaO
81. Froth flotation process is used to concentrate
    1) Sulphide containing ore due to hydrophobic property
    2) Sulphide containing ore due to hydrophilic property
    3) Oxide containing ore due to hydrophobic property
    4) Oxide containing ore due to hydrophilic property
82. Which of the following is the correct order of the atomic radii of the elements oxygen, fluorine and nitrogen ?
    1) $O < F < N$
    2) $N < F < O$
    3) $O < N < F$
    4) $F < O < N$
83. At a constant pressure 'P', the plot of volume (V) as a function of temperature (T) for 2 moles of an ideal gas gives a straight line with a slope 0.328 LK^{-1}. The value of P (in atm) is closest to [gas constant R = 0.0821 L atm mol^{-1} k^{-1}]
    1) 0.25
    2) 0.5
    3) 1.0
    4) 2.0
84. At constant temperature, the pressure of 'x' dm^3 of a gas was increased from 75 kPa to 150 kPa. The new volume will be
    1) x
    2) 2x
    3) x^2
    4) x/2
85. To get 32 g of calcium oxide, the mass of calcium carbonate to be heated strongly is
    1) 56.1 g
    2) 44 g
    3) 100 g
    4) 57.14 g
86. The number of oxygen atoms in 8 g of O_2 molecules
    1) 1.51×10^{23}
    2) 6.022×10^{23}
    3) 2×10^{23}
    4) 3.011×10^{23}
87. A dilute solution of ethanoic acid in water is called
    1) Spirit
    2) Denatured alcohol
    3) Aldehyde
    4) Vinegar
88. **Assertion :** Alcohol have similar chemical properties.
    Reason : All alcohols contains similar hydroxy (–OH) functional group.
    1) Both assertion and reason are correct and reason is correct explanation of assertion
    2) Both assertion and reason are correct and reason is not correct explanation of assertion
    3) Assertion is correct but reason is incorrect
    4) Assertion is incorrect but reason is correct

89. Match the following.

Column–I (Compound)		Column–II (IUPAC name)	
A) $CH_3-\overset{\overset{\displaystyle O}{\|}}{C}-H$		i)	Butanoic acid
B) (structure)		ii)	Ethanal
C) (structure)		iii)	Methoxy ethane
D) (structure)		iv)	3–Methyl pent-2-ene

1) A–ii, B–i, C–iii, D–iv
2) A–iii, B–ii, C–i, D–iv
3) A–i, B–ii, C–iii, D–iv
4) A–ii, B–iii, C–i, D–iv

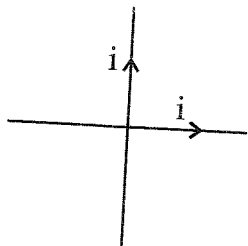90. The substance not responsible for the hardness of water is
1) Sodium nitrate
2) Calcium hydrogen carbonate
3) Calcium carbonate
4) Magnesium carbonate

Space for Rough Work

91. Volume of an object is 20 cm³ and the mass is 50g. Density of water is 1g/cm³. Will the object float on water or sink in water ?
    1) Sink
    2) Float
    3) Half in air and half in water
    4) Cannot predict

92. A box floats in water with 40 % of its volume below water surface. What is the density of the box ? Take the density of water to be 1000 kg/m³.
    1) 600 kg/m³
    2) 400 kg/m³
    3) 0.4 kg/m³
    4) 0.6 kg/m³

93. The maximum potential difference that can be applied across an electric bulb is 100 V and it gives a maximum power of 500 W. If this bulb is to be used with a 200 V supply then the resistance 'R' that must be kept in series with the bulb so that the bulb doesn't get fused is
    1) 30 Ω
    2) 5 Ω
    3) 10 Ω
    4) 20 Ω

94. Similar cells are used to light similar bulbs in the circuits below each showing a different combination.

Which lamp is brightest and which is dimmest ?

	Brightest	Dimmest
1)	Q	P
2)	Q	R
3)	R	P
4)	R	Q

95. If 80 g steam of temperature 97°C is released on an ice slab of temperature 0°C, how much ice will melt ? How much energy will be transfered to the ice when the steam will be transformed to water ?
    1) 637 g and 50960 cal
    2) 637 kg and 50960 kcal
    3) 376 kg and 56900 kcal
    4) 736 kg and 56900 cal

96. A car accelerates uniformly from 36 km/hr to 72 km/hr in 10 sec. Calculate (I) the acceleration and (II) the distance covered by the car in this time
    1) 1 m/s², 150 m
    2) 2 m/s², 100 m
    3) 4 m/s², 50 m
    4) 1 m/s², 100 m

97. If motion of the object is uniform, then which one of the following is correct ?
    1) Velocity is constant
    2) Acceleration is constant
    3) Both 1 and 2
    4) None of these

98. The velocity of a car increase linearly from 36 km/hr to 54 km/hr in 4 seconds. How much is the work done, if the mass of the car is 1600 kg ?
   1) 10^3 J
   2) 10^4 J
   3) 10^5 J
   4) 10^6 J

99. Two unequal masses possess the same momentum, then the kinetic energy of the heavier mass is _____ than the kinetic energy of the lighter mass.
   1) More
   2) Less
   3) Equal
   4) Can not predict

100. A man is 180 cm tall and his eyes are 10 cm below the top of his head. In order to see his entire height, the minimum height of the plane mirror required is
   1) 180 cm
   2) 90 cm
   3) 85 cm
   4) 170 cm

101. An object 1 cm tall is placed 4 cm in front of a mirror. In order to produce an upright image of 3 cm height one need
   1) Convex mirror ; R = 12 cm
   2) Concave mirror ; R = 12 cm
   3) Convex mirror ; R = 4 cm
   4) Plane mirror of height 12 cm

102. **Assertion :** Sound can not travel through vacuum.
   Reason : Sound wave is an electromagnetic wave
   1) Assertion - true, Reason - false
   2) Assertion - true, Reason - true
   3) Assertion - false, Reason - true
   4) Assertion - false, Reason - false

103. Match the column.

	Group-A		Group-B
a)	Temperature of a healthy human body	I.	296 K
b)	Boiling point of water	II.	98.6 °F
c)	Room temperature	III.	0°C
d)	Freezing point of water	IV.	212°F

   1) a–II, b–I, c–IV, d–III
   2) a–IV, b–II, c–I, d–III
   3) a–II, b–IV, c–I, d–III
   4) a–I, b–II, c–III, d–IV

104. International space station and Hubble telescope revolve in
   1) high earth orbit
   2) medium earth orbit
   3) low earth orbit
   4) all the orbits

105. $6.67 \times 10^{-11} \dfrac{Nm^2}{kg^2} = 6.67 \times \text{.......} \dfrac{dyne\ cm^2}{g^2}$

   1) 10^{-14}
   2) 10^{-13}
   3) 10^{-8}
   4) 10^{-10}

106. Equal currents i flow in two wires along x and y-axis as shown. Match the following.

Column-I		Column-II	
A)	Magnetic field in first quadrant	p)	Inwards
B)	Magnetic field in second quadrant	q)	Outwards
C)	Magnetic field in third quadrant	r)	May be inwards or outwards
D)	Magnetic field in fourth quadrant		

Options :

1) A–p, B–q, C–p, D–r

2) A–q, B–r, C–q, D–p

3) A–r, B–q, C–r, D–p

4) A–r, B–p, C–r, D–q

107. At what temperature will its value be same in celsius and in fahrenheit ?

1) 40°

2) –40°

3) 32°

4) 0°

108. Light passes from a medium A to another medium B without bending at the interface. Which of the following is not possible ?

1) A and B have the same refractive index and light falls on the interface obliquely

2) A and B have the same refractive index and light falls on the interface perpendicularly

3) A and B have different refractive indices and light falls normally on the interface

4) A and B have different refractive indices and light falls obliquely on the interface

109. In nearsightedness, the image of a distant object forms

1) In front of the retina

2) On the retina

3) Beyond the retina

4) Any where

110. What is the minimum distance between an object and its real image formed by a convex lens of focal length 'f' ?

1) zero

2) 2f

3) 3f

4) 4f

IMPORTANT DATES

SCREENING TEST (Shahu) - 2023 (OFFLINE MODE ONLY)	02 Apr. 2023
Online display of provisional answer keys	02 Apr. 2023 : 06 PM
Last Date Feedback and comments on Provisional Answer Keys from Candidates	04 Apr. 2023 : 06 PM
Online declaration of final answer keys	05 Apr. 2023 : 06 PM
Copy of candidate responses to be available on the website	07 Apr. 2023 After 02 PM
Result of SCREENING TEST 2022 (Indivisual Login)	07 Apr. 2023 After 02 PM
Parent's Meet (PCM GROUP)	09 Apr. 2023 at 02-30 PM
Parent's Meet (PCB GROUP)	09 Apr. 2023 at 11-00 AM
Admissions : First List	09 Apr. 2023 to 13 Apr. 2023 UPTO 06 PM
Admissions : Second List	15 Apr. 2023 to 18 Apr. 2023 UPTO 06 PM

वरील तारखांमध्ये काही बदल होऊ शकतो विद्यार्थी आणि पालकांनी अधिक माहितीसाठी वेबसाईट पाहणे.