



SCSS-ST-SB-22

PCM

Question Booklet Sr. No.

Date : 10/04/2022 Time : 2.30 Hrs.

Marks : Section-A = 30 + Section-B = 240 = 270

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 until you are asked to do so.
3. This Test Booklet contains of **90** 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 **Mental Ability**.
8. The **Part-III** contains **10** questions of **Basic Mathematics**.
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 **20** questions of **Physics**.
12. The **Part-II** contains **20** questions of **Chemistry**.
13. The **Part-III** contains **20** questions of **Mathematics**.
14. In the **Section-B**, each question carries **4** marks. There is negative marking system. For each wrong answer **1** mark will be deducted.
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

--	--	--	--	--	--	--

Section - A : (Part-I – English)

Instruction :

1. Select the most suitable alternative which conveys the exact meaning in accordance with the correct grammatical rules.
- 1) My sister had left for America last week.
 - 2) My sister has been left for America last week.
 - 3) My sister has left for America last week.
 - 4) My sister left for America last week.

Instruction : Identify the part that contains an error.

2. Neither (A)/ the old man nor his (B) / children knows (C) / what to do about the (D) / problem.
- | | |
|------|------|
| 1) A | 2) B |
| 3) C | 4) D |

Instruction : Choose the one which best replaces the underlined words.

3. One of the function of a teacher is to spot cases of maladjustment.
- | | |
|----------------------------|----------------------------|
| 1) Most of the function of | 2) One of the functions of |
| 3) One of the functions by | 4) NO change |

Instruction : Find the word that conveys the same meaning.

4. DOMAIN.
- | | |
|--------------|---------|
| 1) area | 2) main |
| 3) marketing | 4) wild |

Instruction : Select the word that is opposite in meaning.

5. CONVEX.
- | | |
|------------|------------|
| 1) concave | 2) U-shape |
| 3) bent | 4) arched |

Instruction : Select the pair of words to replace the question mark.

6. Kindness : Mercy :: Cruelty : ____?
- | | |
|---------------|----------------|
| 1) Savageness | 2) Wildness |
| 3) Death | 4) Destruction |

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

7. Teetotaler means.
- 1) one who abstains from theft
 - 2) one who abstains from meat
 - 3) one who abstains from taking wine
 - 4) one who abstains from taking malice

Instruction : Find out the correct meaning of the Idiomatic expression :

8. To be at the zenith of.
- 1) to die an immature death
 - 2) to be succumbed to one's flattery
 - 3) to be at the peak of
 - 4) face difficulty boldly

Instruction :

9. Choose the correctly spelt word :
- | | |
|----------------|---------------|
| 1) accomodate | 2) accomodate |
| 3) accommodate | 4) acomodate |

Instruction : Choose the correct alternative out of the four choices to complete the sentence

10. If I _____ you, I would have told him the truth
- | | |
|--------|---------|
| 1) am | 2) were |
| 3) was | 4) and |

21. Two pipes A and B can fill a tank in 16 hours and 20 hours respectively. If the both pipes are opened simultaneously then how much time will it take to fill the tank?
 - 1) $8\frac{8}{5}$ hrs
 - 2) $8\frac{8}{9}$ hrs
 - 3) $8\frac{17}{9}$ hrs
 - 4) $8\frac{17}{9}$ hrs
22. If the length of the diagonals of rhombus are 30 cm and 16 cm respectively. Then perimeter of rhombus is
 - 1) 17 cm
 - 2) 69 cm
 - 3) 68 cm
 - 4) 63 cm
23. If $\tan \theta = \frac{p}{q}$ and $q^2 = 1 + p^2$ then value of $\frac{\sin \theta + \cos \theta}{\cos \theta - \sin \theta}$ is
 - 1) $(p-q)^2$
 - 2) $(q-p)^3$
 - 3) $\frac{p^2 + q^2}{p^2 - q^2}$
 - 4) $(p + q)^2$
24. If the values of $a = \sqrt{3}, b = \sqrt{5}, c = \sqrt{7}$ then values of $(a - b)^3 + (b - c)^3 + (c - a)^3$ is
 - 1) $3(a-b)(b-c)(c-a)$
 - 2) $3(a+b)(b+c)(c+a)$
 - 3) $3abc$
 - 4) none of these
25. The segment AB is trisected by the points P and Q then length of PQ is where $A \equiv (5, -6)$ and $B \equiv (-7, -1)$
 - 1) 13
 - 2) $\frac{13}{5}$
 - 3) $\frac{13}{3}$
 - 4) None of these

Space For Rough Work

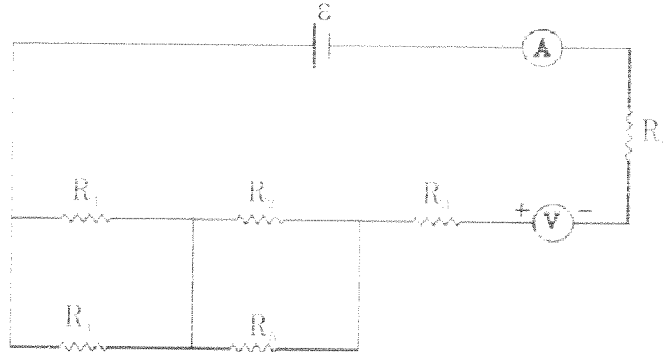
PTN

-
- A diagram showing a particle (represented by a circle with a cross) moving in a magnetic field (represented by a grid of crosses). A curved arrow labeled 'A' indicates the vector potential, and a curved arrow labeled 'C' indicates the magnetic field. The particle is labeled '0'.

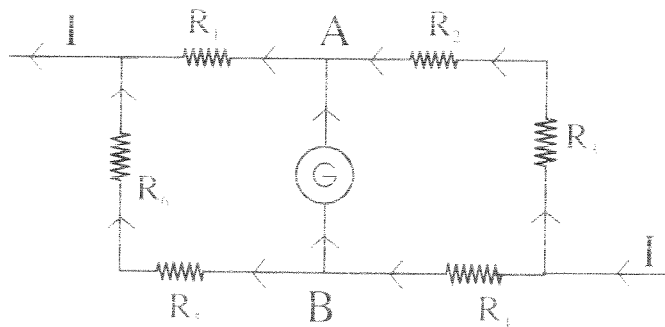
- 1) there will be no induced emf in the ring
 - 2) there will be no induced current in the ring
 - 3) there will be induced current in the ring
 - 4) there will be magnetic field only
35. A cylindrical bar magnet is kept along the axis of a circular coil. If the magnet is rotated about its axis then
- 1) A current will be induced in a coil
 - 2) No current will be induced in a coil
 - 3) Only an emf will be induced in a coil
 - 4) An emf and a current both will be induced in a coil

(7)

36. A coil of metal wire is kept stationary in a uniform magnetic field, then
 1) an emf is induced in the coil 2) a current is induced in the coil
 3) neither emf nor current is induced 4) both emf and current are induced
37. In the given circuit, the ammeter and the voltmeter are ideal. The reading of ammeter is almost zero, and voltmeter is not showing any reading, to have a finite current I , how do you proceed with the following options



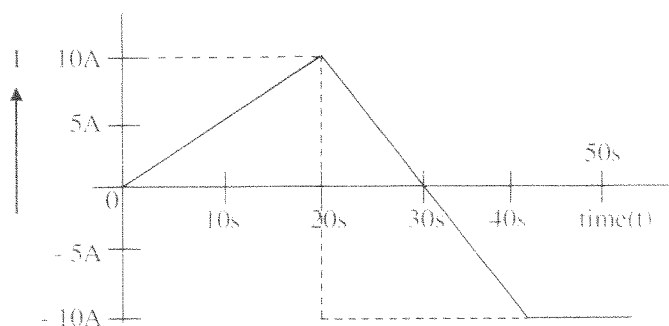
- 1) Ammeter must be connected in parallel
 2) Ammeter and voltmeter are to be interchanged
 3) Voltmeter is not working
 4) Voltmeter must be connected in parallel across any resistor
38. The galvanometer (G) in the circuit is a sensitive device and cannot sustain with a high current, to protect it, a high resistance (HR) is provided to you — choose the correct option



- 1) HR is not needed
 2) HR must be connected in between A and G
 3) HR must be connected in between G and B
 4) HR can be connected anywhere in the branch AB

Space For Rough Work

39. The current strength (I) in ampere on Y-axis and time (t) in second on X-axis plotted as shown in the figure. Analyse and choose the correct option of the following



- 1) In the interval 0s to 20s current has same direction and magnitude
 - 2) The direction of the current is reversed just after 20 second
 - 3) The strength of the current is increasing from 30 second to 40 second, but in opposite direction to that of initial direction during 0 s to 30 s
 - 4) The directions of the current between 25 second to 30 second and 15 second to 20 second are opposite
40. In a liquid across a cross-section, the flow of charge (including positive and negative ions) within a time interval of one milli second is as shown, the current strength can be
- 1) 4×10^{-4} A along +ve x-axis
 - 2) 10 A along +ve x-axis
 - 3) 10^{-2} A along +ve x-axis
 - 4) 0.4 A along -ve x-axis
-
41. For a particle at rest, which of the following quantity does not change anywhere
- 1) mass
 - 2) weight
 - 3) gravitational force
 - 4) acceleration due to gravity
42. Two objects of mass 2 kg and 8 kg separated by a distance of 4m. Find the gravitational force between the two bodies
- 1) $4 \times 6.67 \times 10^{-11}$ N
 - 2) $4 \times 6.67 \times 10^{-8}$ N
 - 3) 6.67×10^{-8} N
 - 4) 6.67×10^{-11} N
43. Find the increase in K.E. of a body of mass 200 g, when its speed increases from 4 m/s to 5 m/s ?
- 1) 0.9 J
 - 2) 9 J
 - 3) 900 J
 - 4) 90 J

Space For Rough Work

14. The kinematical equations of the motion can be applicable only when the particle has.
- displacement constant
 - variable acceleration
 - acceleration constant
 - non uniform acceleration
15. Prapti has applied a force of 50 N on an object, at an angle of 30° to the vertical. The object gets displaced in the horizontal direction and 300 J work is done. What is the displacement of the object ?

- 12 m
- $\frac{12}{\sqrt{3}}$ m
- $\frac{12}{\sqrt{2}}$ m
- 6 m

16. A force is needed to
- change state of rest
 - change state of motion
 - change direction of motion

Choose the correct option

- (i) only
 - (i) and (ii) only
 - (i)(ii) and (iii)
 - (iii) only
17. Motion of the particle along the circumference of the circle is known as uniform circular motion, if its ----- remains constant.

- speed
- velocity
- acceleration
- displacement

18. Motion of the particle is known as non-uniform motion, if its

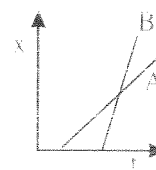
- speed constant
- velocity constant
- acceleration constant
- acceleration variable

which of the following option is correct.

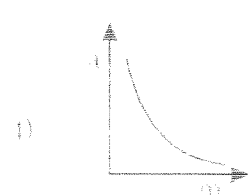
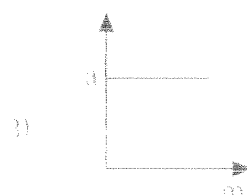
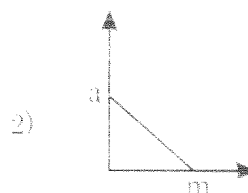
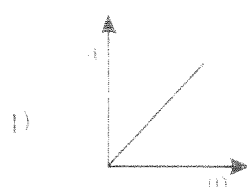
- only I
- only II
- only III
- III or IV

19. Figure shows distance time graphs of two objects A & B. Which object is moving with a greater speed when both are moving ?

- A is faster than B
- B is faster than A
- Both A & B have same speed
- B is stationary



20. If a constant force is applied on bodies of different masses, corresponding acceleration - mass graph is



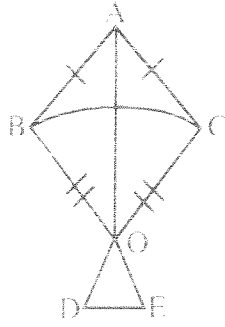
- (11)

63. Lead nitrate on decomposition releases brown colour fumes. The chemical formula of brown colour fumes is
- NO_2
 - NO
 - N_2O
 - N_2O_5
64. When Bauxite is heated with NaOH solution. The water soluble compound formed is
- NaAlO_2
 - Na_3AlO_3
 - Al(OH)_3
 - Al_2O_3
65. A student takes about 2 ml ethanoic acid in a dry test tube and adds a pinch of sodium carbonate to it. What will observe?
- A colourless and odourless gas evolves with brisk effervescence.
 - A colourless and odourless gas evolves which burns with pop sound when a burning candle is brought near it.
 - A brown coloured gas with foul smell evolves with a brisk effervescence.
 - A brown coloured gas with foul smell evolves which burns with pop sound when a burning candle is brought near it.
66. The property of direct bonding between atoms of the same element to form a chain is called
- isomerism
 - polymerization
 - dehydration
 - catenation
67. Members of a homologous series have similar
- chemical properties
 - physical properties
 - molecular weight
 - general molecular formula
68. Match the following :
- | | |
|----------------|--|
| A) Cooking gas | i) $\text{C}_{12}\text{H}_{22}\text{O}_{11}$ |
| B) Sugar | ii) $\text{C}_{10}\text{H}_{16}\text{O}$ |
| C) Camphor | iii) C_6H_6 |
| D) Benzene | iv) $\text{C}_3\text{H}_8 + \text{C}_4\text{H}_{10}$ |
- A – iv, B – ii, C – iii, D – i
 - A – iii, B – ii, C – i, D – iv
 - A – iv, B – i, C – ii, D – iii
 - A – ii, B – iii, C – iv, D – i
69. Higher homologue of methyl alcohol on complete oxidation gives
- CO_2 and H_2O
 - CH_3CHO
 - HCOOH
 - CH_3COOH
70. $\text{CH}_4 + \text{Cl}_2 \xrightarrow{\text{Sunlight}} \text{CH}_3\text{Cl} + \text{HCl}$ is an example of
- addition reaction
 - substitution reaction
 - combustion reaction
 - reduction reaction

Space For Rough Work

Space For Rough Work

77. A kite is made as shown alongside in which ABC is an equilateral triangle with side 20 cm. BOC is an isosceles triangle with $OB = OC = 26$ cm and ODE is an isosceles triangle with the base $DE = 8$ cm and height 6 cm. Find area of kite



- 1) 136.2 sq. cm 2) 137.2 sq. cm
 3) 139.2 sq. cm 4) 135.2 sq. cm
78. The sum of the interior angles of a polygon is five times the sum of its exterior angles. Find the number of sides in the polygon
- 1) 8 2) 10
 3) 12 4) 6
79. If $a^2 + \frac{1}{a^2} = 23$ and $a \neq 0$ then $a^3 + \frac{1}{a^3} =$
- 1) 100 2) 46
 3) 110 4) 529
80. What sum of money will amount to Rs. 9,261 in 3 years at 5% per annum compound interest?
- 1) 6,000 2) 7,000
 3) 8,000 4) 9,000
81. Srikanth and Satish running around a circular path. Srikanth takes 24 minutes and Satish takes 18 minutes to complete one round of the path. If both of them starts at the same point, then find after how many minutes they will meet again at the same starting point.
- 1) 64 minutes 2) 332 minutes
 3) 72 minutes 4) 80 minutes
82. Find the remaining two zeros of the polynomial $f(y) = 3y^4 + 6y^3 - 2y^2 - 10y - 5$. If the two

zeros of polynomial is $\pm \sqrt{\frac{5}{3}}$

1) $(-1, 2)$

2) $(-1, -1)$

3) $(-3, 1)$

4) $(-1, 3)$

Space For Rough Work

83. If the roots of the equation $(a - b)x^2 + (b - c)x + (c - a) = 0$ are equal then
- 1) $2b = a + c$
 - 2) $2a = b + c$
 - 3) $2c = a + b$
 - 4) $\frac{1}{b} = \frac{1}{a} + \frac{1}{c}$
84. A man walks a distance of 48 Km in a given time. If he walks 2 Km/hr faster, he will perform the journey 4 hrs before. His normal rate of walking is
- 1) 3 Km/hr
 - 2) 4 Km/hr
 - 3) - 6 Km/hr
 - 4) 5 Km/hr
85. There are 25 trees at equal distances of 5 meters in a line with a well. The distance of the well from the nearest tree being 10 metres. A gardener waters all the trees separately starting from the well and he returns to the well after watering each tree to get water for the next. Find the total distance, the gardener will cover in order to water all the trees
- 1) 3000 m
 - 2) 3500 m
 - 3) 3800 m
 - 4) 4000 m
86. If a tree casts a 18 feet shadow and at the same time, a child of height 3 feet casts a 2 feet shadow, then the height of the tree is
- 1) 32 feet
 - 2) 45 feet
 - 3) 36 feet
 - 4) 27 feet
87. If $x = \frac{\sqrt{3a+2b} + \sqrt{3a-2b}}{\sqrt{3a+2b} - \sqrt{3a-2b}}$. Then $bx^2 + b =$
- 1) $3x$
 - 2) $3ax$
 - 3) $3b^2$
 - 4) $3bx$
88. If $\sin^2 \theta_1 + \sin^2 \theta_2 + \sin^2 \theta_3 = 0$.
- Then which of the following is not possible value of $\cos \theta_1 + \cos \theta_2 + \cos \theta_3$?
- 1) 3
 - 2) - 3
 - 3) - 1
 - 4) - 2
89. If $\tan A + \sin A = m$ and $\tan A - \sin A = n$ then $m^2 - n^2 =$
- 1) $4\sqrt{m}$
 - 2) $4\sqrt{n}$
 - 3) $4\sqrt{mn}$
 - 4) $4mn$
90. A bag contains 12 balls of two different colours, out of which X are white. One ball is drawn at random. If 6 more white balls are put in the bag, the probability of drawing a white ball now will be double to that of the previous probability of drawing a white ball. Then, the value of X is
- 1) 3
 - 2) 4
 - 3) 5
 - 4) 6

Space For Rough Work



IMPORTANT DATES

**ONLY For 10th Maharashtra State Board Students
(Except CBSE, ICSE And Other Board Students)**

Screening Test 2022 : Pen Paper Based (OFF LINE MODE EXAM ONLY)	Please Refer Website : www.junior-shahucollegeatatur.org.in
Registration for Screening Test - 2022	22 Feb. 2022 to 14 Mar. 2022
Last date for fee payment of registered Candidates	15 Mar. 2022 (13:00 IST)
Admit Card available for downloading (Login your Account)	06 Apr. 2022 (17:00 IST)
SCREENING TEST - 2022 (OFFLINE MODE ONLY)	<u>10 April 2022</u>
Copy of candidate responses to be available on the website	14 Apr. 2022 (13:00 IST)
Online display of provisional answer keys	14 Apr. 2022 (13:00 IST)
Feedback and comments on provisional answer keys from the candidates	14 Apr. 2022 (13:00 IST) 15 Apr. 2022 (13:00 IST)
Online declaration of final answer keys	16 Apr. 2022 (11:00 IST)
Result of SCREENING TEST 2022	16 Apr. 2022 (15:00 IST) (On Candidate Individual Login)
Parent's Meet (PCM GROUP)	17 Apr. 2022 (11:00 IST) (For Selected and Wait List Candidate)
Parent's Meet (PCB GROUP)	17 Apr. 2022 (14:00 IST) (For Selected and Wait List Candidate)
Admissions : First List	18 Apr. 2022 (11:00 IST) 21 Apr. 2022 (17:00 IST)

Space For Rough Work