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Questions & Answers

for

NTSE (Stage-I) 2019-20

INSTRUCTIONS TO CANDIDATES

Read the following instructions carefully before you open the question booklet.

1. Use blue/black ballpoint pen only. There is no negative marking.
2. Part I : MAT : 1 - 100 questions
Part II : SAT : 1 - 100 questions
3. This test booklet contains 200 questions of one mark each. All the questions are compulsory.
4. Answer each question by darkening the one correct alternative among the four choices on the OMR SHEET with blue/black ballpoint pen.

Example :

Q. No.	Alternatives
Correct way : 1	① ② ● ④
Q. No.	Alternatives
Wrong way : 1	⊗ ⊕ ⊖ ⊙

Student must darkening the right oval only after ensuring correct answer on OMR Sheet.

5. Students are not allowed to scratch / alter / change out an answer once marked on OMR Sheet, by using white fluid / eraser / blade / tearing / wearing or in any other form.
6. Separate sheet has been provided for rough work in this test booklet.
7. Please handover the OMR Sheet to the invigilator before leaving the Examination Hall.
8. Darken completely the ovals of your answer on OMR Sheet in the time limit allotted for that particular paper.
9. Your OMR Sheet will be evaluated through electronic scanning process. Incomplete and incorrect entries may render your OMR Sheet invalid.
10. Use of electronic gadgets, calculator, mobile etc, is strictly prohibited.

PART-I : MENTAL ABILITY TEST (MAT)

Direction (Q1 to Q5) : There is number series following a pattern, one blank is left, to fill the blank find the number/word from given alternatives.

1. 3, 7, 16, 35, 74 _____
 (1) 150 (2) 153
 (3) 161 (4) 163

Answer (2)

2. 38, 49, 62, 70, 77 _____
 (1) 82 (2) 81
 (3) 97 (4) 91

Answer (4)

3. 3, 4, 13, 4, 5, 21, 5, 6, 31, 7, 6 _____
 (1) 55 (2) 42
 (3) 57 (4) 45

Answer (1)

4. 1, 8, 9, 64, 25, 216, 49, _____
 (1) 343 (2) 512
 (3) 1001 (4) 81

Answer (2)

5. AY, CW, EU, GS, _____
 (1) JO (2) LN
 (3) IQ (4) DV

Answer (3)

Direction (6 to 10) : Three terms are alike in certain way and one is different, find that odd/wrong/different term.

6. 2, 12, 36, 80, 152, 252
 (1) 252 (2) 152
 (3) 12 (4) 40

Answer (2)

7. 2, 3, 8, 27, 110, 565
 (1) 110 (2) 8
 (3) 27 (4) 565

Answer (1)

8. 12, 14, 18, 26, 38, 60, 74
 (1) 26 (2) 74
 (3) 18 (4) 60

Answer (4)

9. (1) AEDCB (2) KONML
 (3) QSTUR (4) HLKJI

Answer (3)

10. (1) ANRYAAH (2) DGRHAAIHGN
 (3) ANHTAJASR (4) BNJUAP

Answer ()

Direction-In questions (Q11 to Q15) : analyze the series and fill the gap

11. a__ba__bb____bb__a____
 (1) aabbaa (2) abbbab
 (3) baaaab (4) baaaba

Answer (3)

12. __aab__caa__bbc__a__b__ca
 (1) abaaba (2) abaaab
 (3) cbacaa (4) abcbaa

Answer (2)

13. __bc__bb__aab____
 (1) ababc (2) acacc
 (3) aaccb (4) babcc

Answer (2)

14. 23__4__1__53____3__41
 (1) 514322 (2) 513242
 (3) 254312 (4) 514225

Answer (4)

15. 10__2__02____022
 (1) 2122 (2) 2121
 (3) 2101 (4) 1022

Answer (2)

Direction (Q16 to Q20) : Two terms before sign : : have some relationship between them. Analyzing relationship develop same kind of relationship among the terms after sign : : and answer among alternatives

16. 321 : 12 :: 524 : ?
 (1) 29 (2) 33
 (3) 35 (4) 31

Answer (4)

17. 23 : 127 :: 47 : ?
 (1) 423 (2) 525
 (3) 345 (4) 341

Answer (3)

18. 24 : 816 :: 35 : ?
 (1) 2527 (2) 2725
 (3) 2716 (4) 618

Answer (2)

19. XVR : WWS :: DXK : ?

- (1) LCY (2) CYL
(3) YCL (4) RLY

Answer (2)

20. RP : 89 :: TH : ?

- (1) 104 (2) 420
(3) 410 (4) 424

Answer (3)

Direction (Q21 to Q24) : Find the missing character.

21.

23	24	48
32	33	54
34	17	?

- (1) 58 (2) 63
(3) 93 (4) 84

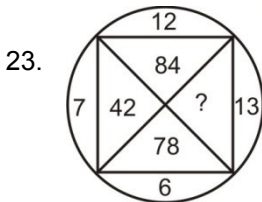
Answer (4)

22.

37	61	71
47	53	41
59	?	43

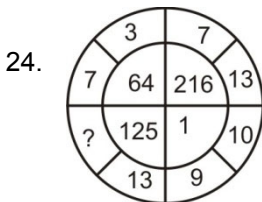
- (1) 29 (2) 67
(3) 84 (4) 62

Answer (2)



- (1) 26
(2) 156
(3) 39
(4) 70

Answer (2)

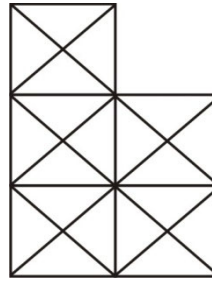


- (1) 10 (2) 8
(3) 112 (4) 124

Answer (2)

Direction (25 to 27) : Answer the questions based on diagram

25. How many squares are there?



- (1) 10 (2) 12
(3) 15 (4) 14

Answer (2)

26. How many rectangles are there excluding squares

- (1) 10 (2) 13
(3) 15 (4) 12

Answer (4)

27. How many triangles are in given figure?

- (1) 56 (2) 57
(3) 54 (4) 43

Answer (1)

28. How many straight lines in given figure?

- (1) 10 (2) 12
(3) 14 (4) 16

Answer (3)

Direction : According to code language words in the column are given and their codes are given in column-II, Decode the language and choose the correct code for the words in questions (Q29 to Q34) among given alternatives.

Column-I

- LASER
HEAVY
WATER
PLANE
SHOCK
MIRTH
STONE

Column-II

- lnmcq
nstmz
hxqkm
menfe
xlyzd
wzkaq
xnlke

29. Code for E

- (1) n (2) m
(3) q (4) s

Answer (1)

30. Code for A

- (1) x (2) z
(3) d (4) m

Answer (4)

31. Code for S

- (1) x (2) l
(3) c (4) a

Answer (2)

32. Code for L

- (1) m (2) e
(3) c (4) z

Answer (3)

33. Code for R

- (1) z (2) k
(3) l (4) q

Answer (4)

34. In a certain code language, 134 means 'Good and Tasty', 478 means 'See Good Picture', and 729 means 'Picture and faint'. Which of the following numerical symbols stands for 'See'?

- (1) 4 (2) 2
(3) 7 (4) 8

Answer (4)

Direction (Q35 to Q37) : Study the following information carefully and answer the questions that follows:

A, B, C, D, E, F and G are seven kids playing in the garden. They are wearing clothes of colours-black, blue, white, green, pink, yellow and brown. Out of seven, three are girls. No girl is wearing either black, yellow or brown. D's sister F is wearing pink while he is wearing brown. A is wearing blue, while his sister B is not wearing green. E is wearing yellow, while his best friend G is a boy.

35. What colour is B wearing?

- (1) Green (2) Pink
(3) Brown (4) None of these

Answer (4)

36. What colour is G wearing?

- (1) Black (2) Blue
(3) White (4) Green

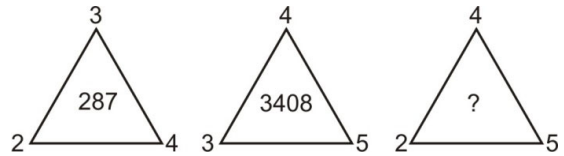
Answer (1)

37. What colour is C wearing?

- (1) Black (2) Green
(3) White (4) None of these

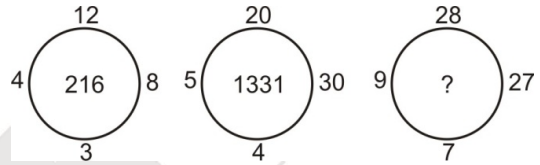
Answer (2)

Direction : Find the missing character in questions (Q38 to Q39) such that it follows some rule.

38. 

(1) 3385 (2) 3395
(3) 3412 (4) 297

Answer (1)

39. 

(1) 125 (2) 512
(3) 1728 (4) 343

Answer (4)

40. At what time between 4 and 5 O'clock will the hands of clock coincides?

- (1) $32\frac{10}{11}$ minute past 4
(2) $21\frac{9}{11}$ minute past 4
(3) $21\frac{10}{11}$ minute past 4
(4) 22.5 minute past 4

Answer (2)

41. India got independence on FRIDAY, What will be the day on which Indians will celebrate the independence day in 2047?

- (1) Thursday (2) Friday
(3) Sunday (4) Tuesday

Answer (1)

42. If 2nd day of a month is Tuesday, which will be the fifth day from 20th day of that month?

- (1) Tuesday (2) Wednesday
(3) Thursday (4) Friday

Answer (3)

43. If $G + I = 130$, then $H + L$ will be equal to

- (1) 20
(2) 144
(3) 206
(4) 208

Answer (4)

44. P and Q are married couple, R and S are sisters. Q's son is S's father. How is P related to R?
- (1) Uncle (2) Mother
(3) Grandmother (4) Father

Answer (3)

45. Pointing to a boy, Rita said "His father is my son's only son". How is the boy related to Rita?
- (1) Son (2) Daughter
(3) Grand daughter (4) Great Grand Son

Answer (4)

46. In a row. A is 8th from the left and B is 17th from the right. If they interchange their positions A becomes 14th from the left. How many persons are there in the row?
- (1) 25 (2) 27
(3) 31 (4) 30

Answer (4)

47. Suresh left home for the bus stop 10 minutes earlier than the usual time and reached the bus stop at 9.25 a.m., he takes another 20 minutes to reach office. If Suresh usually reach office 5 minutes before office time, then at what time today he reached office?
- (1) 9.00 am (2) 8.00 am
(3) 10.00 am (4) 9.30 am

Answer (Hence no option is correct)

Direction Questions (Q48 to Q51) : Are based upon the sum of addition, each letter has unique value and for unique value there is unique letter. If E = 4,

$$\begin{array}{r} \text{LET} \\ + \text{THE} \\ \hline \text{LOSS} \end{array}$$

48. Value of S
- (1) 4 (2) 2
(3) 5 (4) 6

Answer (2)

49. Value of H
- (1) 3 (2) 6
(3) 9 (4) 7

Answer (4)

50. Value of L
- (1) 4 (2) 3
(3) 1 (4) 2

Answer (3)

51. Value of T
- (1) 8 (2) 9
(3) 7 (4) 2

Answer (1)

52. If NTSE = 58, NMMS = 59, then PSTSE = ?
- (1) 79 (2) 62
(3) 56 (4) 48

Answer (1)

53. If OM = 195, HARI = 1296, then RAM = ?
- (1) 186 (2) 294
(3) 1392 (4) 234

Answer (4)

Direction-in questions (Q54 and Q55) : Mathematical signs have no meaning. Find clue and target answer

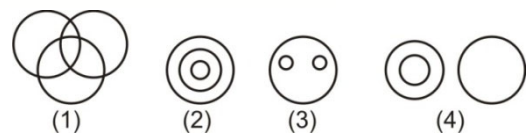
54. $3 \times 4 \times 4 = 82$
 $9 \times 3 \times 4 = 93$
 $7 \times 7 \times 7 = 89$
 $5 \times 8 \times 7 = ?$
- (1) 95 (2) 69
(3) 86 (4) 87

Answer (2)

55. $46 - 3 = 12$
 $64 - 9 = 12$
 $? - 6 = 3$
- (1) 62 (2) 43
(3) 28 (4) 24

Answer (3)

Directions (Q56 to Q58) : In the following questions three classes are given, out of the following four figures that follow, you are to indicate which figure will represent the relationship amongst the three classes.



56. Beverages,
Tea,
Coffees

Answer (3)

57. Triangle,
Rectangle,
Polygon

Answer (3)

58. Patiala,
Punjab,
Gujarat

Answer (4)

Direction in Question (Q59 to Q62) : Six faces of a cube are painted in a manner that no two adjacent faces have the same colour. The three colours used are red, blue and green. The cube is cut into 36 cubes in a manner that 32 cubes are of smaller same size and 4 cubes are of bigger size. Each bigger cube has no red face

59. How many cubes in all have red face?

- (1) 8 (2) 16
(3) 20 (4) 32

Answer (4)

60. How many cubes have only one face coloured?

- (1) 0 (2) 16
(3) 8 (4) 20

Answer (3)

61. How many cubes have three faces painted?

- (1) 8 (2) 20
(3) 16 (4) 28

Answer (1)

62. How many cubes have only two faces painted?

- (1) 28 (2) 20
(3) 16 (4) 8

Answer (2)

63. Rohit is facing west. He turns 45° in the anticlockwise direction and then 180° in the clockwise direction. Which direction is he facing now?

- (1) North (2) North-East
(3) East (4) South-East

Answer (2)

64. Rajan moves 3 meters in north direction, then he moves 4 meters in east direction. How far is he from the starting point?

- (1) 7 meters (2) 5 meters
(3) 4 meters (4) 1 meters

Answer (2)

65. 36 Vehicles are parked in a single row. After the first car there is one scooter, after the second car there are two scooters. After the third car there are three scooters. How many scooters are in the second half of the row?

- (1) 17 (2) 15
(3) 12 (4) 10

Answer (2)

66. Which word cannot be formed from RECOMENDABLE?

- (1) COMENDOR
(2) MENDRECO
(3) ABLEDGOR
(4) MOCABLE

Answer (3)

67. Mansavi wants to go to the market. She starts from her house which is in north and comes to the crossing. The road to her left ends in a park and straight ahead is the office complex. In which direction is the market?

- (1) East (2) North
(3) West (4) South

Answer (3)

Direction (Q68 to Q71) : Study the following information and answer the given questions.

In the following cases/questions in certain code language if

'+' means '÷'

'-' means '×'

'×' means '+'

'÷' means '-'

68. $8 + 2 \times 5 - 3 = ?$

- (1) 27 (2) 15
(3) 19 (4) 47

Answer (3)

69. $9 - 2 \times 27 + 3 \div 1 = ?$

- (1) -51 (2) 180
(3) 26 (4) None of these

Answer (3)

70. $16 + 2 - 3 \times 7 \div 1 = ?$

- (1) -3 (2) 30
(3) 105 (4) None of these

Answer (2)

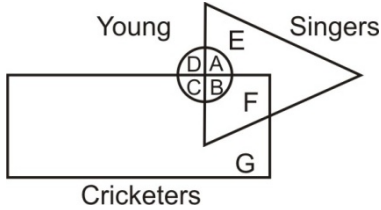
71. $49 + 7 - 5 \times 8 = ?$

- (1) 16
(2) 22
(3) 43
(4) None of these

Answer (3)

Direction (Q72 to Q75) : Study the following information and answer the given question.

In the following figure 'Rectangle represents Cricketers', 'Circle represents Young' and 'Triangle represents Singers'.



72. Which region represents Young Cricketers who are not singers?

- (1) B
- (2) G
- (3) C
- (4) F

Answer (3)

73. Which region represents Old Cricketers who are not singers?

- (1) B
- (2) G
- (3) F
- (4) C

Answer (2)

74. Which region represents Young people who are neither Cricketers nor Singers?

- (1) A
- (2) D
- (3) B
- (4) C

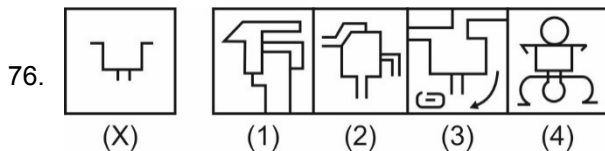
Answer (2)

75. Which region represents Cricketers who are Singers but not Young?

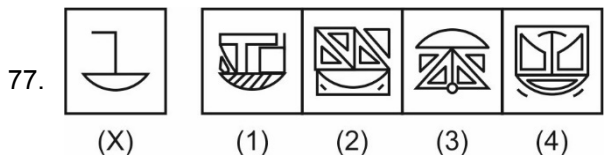
- (1) E
- (2) A
- (3) C
- (4) F

Answer (4)

Direction – Figure(X) is embedded in which of the following four alternatives

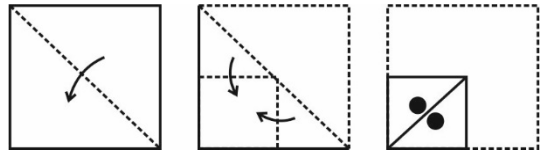


Answer (4)

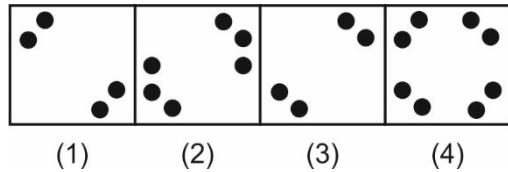


Answer (2)

78. Question Figure:



Answer Figure:

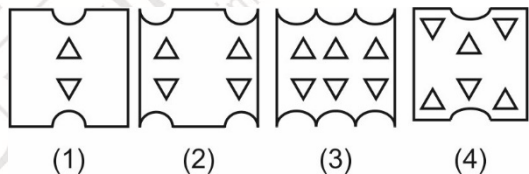


Answer (4)

79. Question Figure:

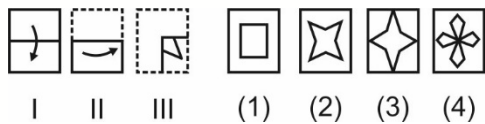


Answer Figure:



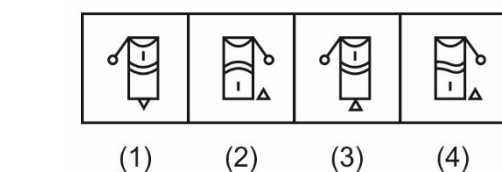
Answer (3)

80. Direction-Three figures marked I, II, III have one fold at 1, 2nd fold at II and is cut in figure III. From among the four alternatives which will show the unfolded position of figure III.

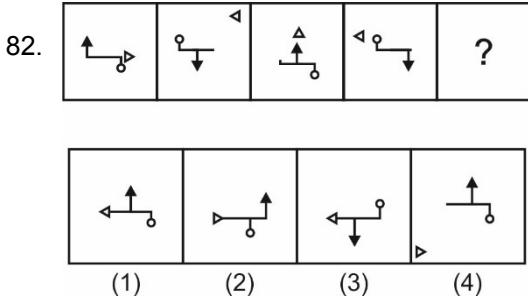


Answer (2)

Direction (Q81 to Q82) : In questions, select the correct figure among alternatives to continue series.



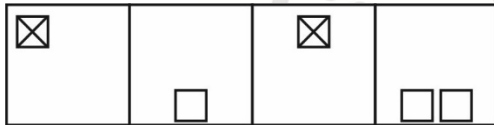
Answer (3)



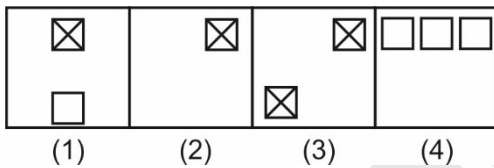
Answer (1)

Direction : In the following question, there are four question figures followed by the answer figures labelled as (1), (2), (3) and (4). The four question figures make common series. Find the correct figures from answer figures which will complete the series.

83. Question figure :

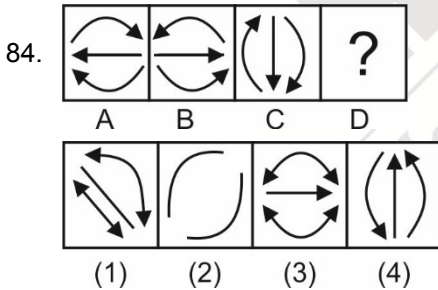


Answer Figure:

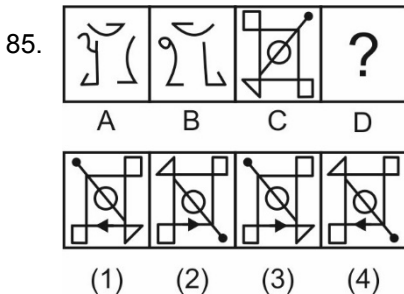


Answer (2)

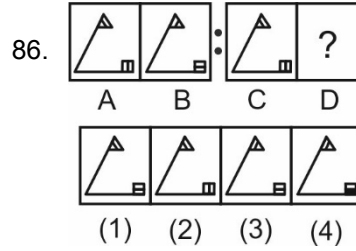
Direction : Figure A and B are related in a particular manner. Establish the relationship between C and D by choosing figure among four alternatives



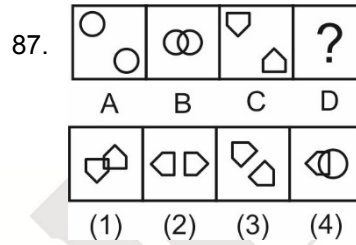
Answer (4)



Answer (1)

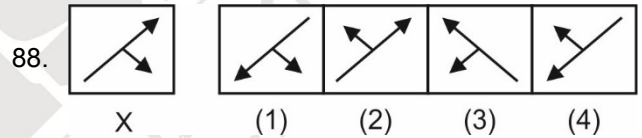


Answer (3)

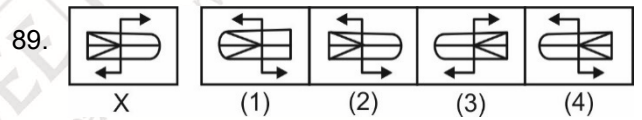


Answer (1)

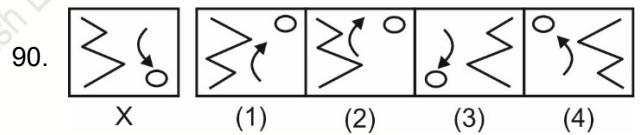
Direction : Find the mirror image of figure (X).



Answer (3)

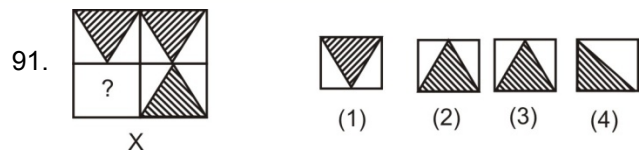


Answer (4)

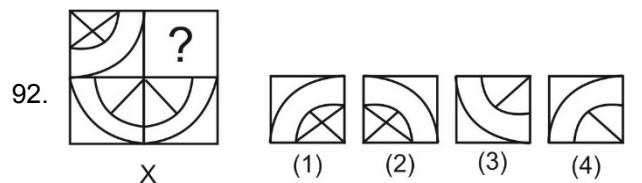


Answer (3)

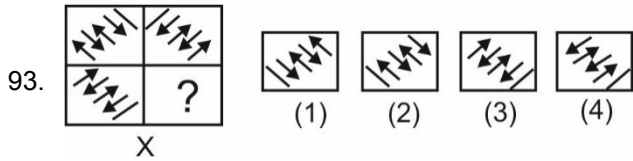
Direction : Complete the given figure (X) among alternatives.



Answer (3)

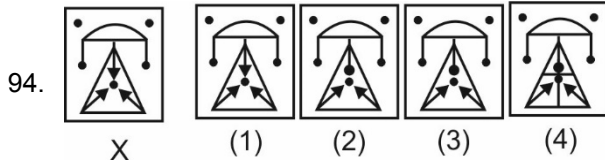


Answer ()

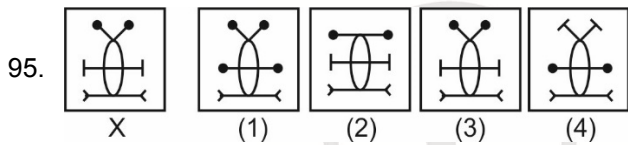


Answer (1)

Direction : Find the figure which is exactly similar to figure(X) from given alternatives

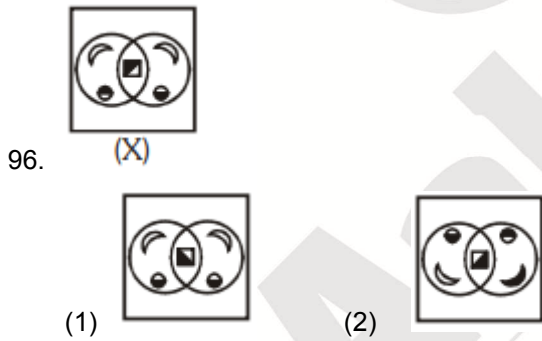


Answer (1)



Answer (3)

Direction : Find the water image of (X)

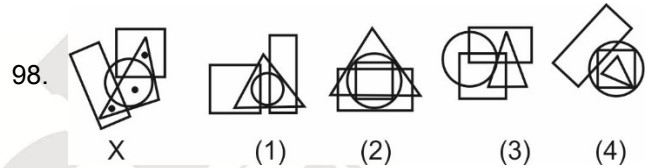


Answer (4)

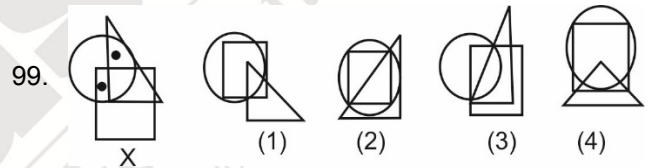
97. DOLLAR (1) DOLLAR (2) DOLLAR
? (3) DOLLAR (4) DOLLAR

Answer (2)

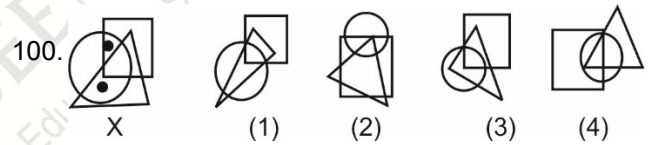
Direction : In questions, select among the alternatives which satisfy the same condition of placement of dots as in the given figure(X).



Answer (1)



Answer (2)



Answer (4)

13. Point out the difference between the local government in India before and after the constitutional amendment in 1992.

- i. It became mandatory to hold regular elections to the local government bodies
- ii. One third positions reserved for women
- iii. Elected officials exercise supreme power in the government

- (1) Only i (2) i and ii
 (3) i, ii and iii (4) ii and iii

Answer (2)

14. When did the civil rights movement take place in USA

- (1) 1953-1958 (2) 1954-1968
 (3) 1960-1970 (4) 1946-1978

Answer (2)

15. When was Bhartiya Janta Party formed?

- (1) 10th April, 1975 (2) 6th April, 1970
 (3) 6th April, 1980 (4) 10th April, 1985

Answer (3)

16. In the context of democracies, what is successfully done by democracies?

- (1) Eliminated conflicts among people
- (2) Eliminated economic inequalities among people
- (3) Eliminated differences of opinion about how marginalized actions are to be treated
- (4) Rejected the idea of political inequality

Answer (4)

17. Who passed "Legal Frame work Order 2002"?

- (1) Zanu
- (2) Robert Mugabe
- (3) General Musharraf
- (4) Allende

Answer (3)

18. Select the right combination of subjects under union list.

- (1) Defence, Atomic energy, Post and telegraphs, war and peace
- (2) Railway, Land, Trade, Police
- (3) Education, Agricultural land, Trade, Defence
- (4) Cyber laws, Adoption, Trade, Forests

Answer (1)

19. Which one of the following countries was the first one to grand Universal Suffrage?

- (1) Russia (2) Germany
 (3) New Zealand (4) The Netherland

Answer (3)

20. Which of the following is working capitals?

- (1) Electricity Bill (2) Tube well
 (3) Tractor (4) Machines

Answer (1)

21. Coins in India are minted by _____

- (1) Ministry of Finance, Government of India
- (2) Reserve Bank of India
- (3) State Bank of India
- (4) Central Bank of India

Answer (1)

22. What should be included in national income by expenditure method

- i. Self-produced final product
 - ii. Expenditure on second hand goods
 - iii. Expenditure on shares
 - iv. Expenditure on intermediate goods
- (1) ii, iii, iv (2) i and ii
 (3) i only (4) iii and iv

Answer (3)

23. What is the definition of overweight?

- (1) BMI > 25 kg/m²
- (2) BMI = 25 kg/m²
- (3) BMI = 25-29.9 kg/m²
- (4) BMI = 25-30 kg/m²

Answer (1)

24. Name one of the following Agency that develops standards for goods and services.

- (1) COPRA
- (2) National Consumer Forum
- (3) Consumer protection council
- (4) Bureau of Indian Standards

Answer (4)

25. National Food for Work Programme was launched in _____

- (1) 2003 (2) 2001
 (3) 2004 (4) 2005

Answer (3)

26. Which of the following countries has poor natural resources but rich human resources?

- (1) India (2) Nepal
(3) Japan (4) Sri Lanka

Answer (3)

27. What is the Gross National Product?

- (1) The total value of Goods and services manufactured in country
(2) The total value of all the transactions in the country
(3) Reduction in the total value of goods and services produced in the country
(4) The total worth of goods and services generated in the country and net factor income from abroad.

Answer (4)

28. Which one of the following is an incorrect fact regarding south India.

- (1) Diurnal range of temperature is less
(2) Annual range of temperature is less
(3) Temperatures are high throughout the year
(4) Extreme climatic conditions are found here

Answer (4)

29. Read the two statements A and B and choose the best answer.

- A. Assertion: Petrochemical Industry is a fast-growing Industry.
B. Reason: Synthetic rubber, plastics, insecticides etc are the products of Petro chemical industry

- (1) A and B both are correct and B explains A
(2) A and B are both correct but B does not explain A
(3) A is correct but B is incorrect
(4) A and B are both incorrect

Answer (2)

30. The process of "Retting" is associated with which of the following?

- (1) Tea
(2) Coffee
(3) Jute
(4) Rubber

Answer (3)

31. The "Golden Quadrilateral" which connects Delhi-Mumbai-Chennai-and Kolkata passes through....

- (1) Amritsar-Ahmedabad-Pune-Patna
(2) Jaipur-Porbander-Hyderabad-Varanasi
(3) Vadodara-Pune
Vishakhapatnam-Varanasi
(4) Nagpur-Bhopal-Surat-Amritsar

Answer (3)

32. The Narmada river in the Peninsular plateau flows westward with a remarkably straight channel. It is because _____

- (1) Slope gradient in this part controls the river channel pattern
(2) River carries huge amount of water which has created straight channel course
(3) River forms the boundary between central highlands and the Deccan Plateau
(4) River flows through the trough of a rift valley inclined westward

Answer (4)

33. If it is 12 noon in a city located on 90° W longitude, what would be time in a city located on 105° W longitude

- (1) 13:00 (2) 12:30
(3) 11:30 (4) 11:00

Answer (4)

34. Iron ore from kudermukh is most likely to be exported through

- (1) Goa (2) Kochi
(3) Mangalore (4) Ennore

Answer (3)

35. Marble is a type of _____ rock.

- (1) Sedimentary (2) Metamorphic
(3) Basalt (4) Igneous

Answer (2)

36. Match the following

i	Iron	a	Digboi
ii	Coal	b	Singhbhum
iii	Manganese	c	Balaghat
iv	Oil	d	Raniganj

- (1) i-b, ii-d, iii-a, iv-c (2) i-b, ii-d, iii-c, iv-a
(3) i-d, ii-b, iii-a, iv-c (4) i-d, ii-b, iii-c, iv-a

Answer (2)

37. Which of the following is found on the foothills and river valley placer deposits:

- (1) lead (2) gypsum
(3) bauxite (4) gold

Answer (4)

38. Choose the false statement among the following statements :

- (1) The southwest monsoon is a continuation of the southeast trade wind, deflected towards the Indian subcontinent after crossing the equator
(2) In winter, India is under the influence of North West monsoon due to westerly jet stream
(3) The southwest monsoon sets in over the kerala coast by 1st June
(4) The shift in the position of the ITCZ is related to the phenomena of the withdrawal of the westerly jet stream from its position over the north Indian plane.

Answer (2)

39. Aus Aman and Boro, grown thrice in a year are types of _____ crops.

- (1) Maize (2) Rice
(3) Millets (4) Wheat

Answer (2)

40. Which of the following is the type of plate boundary of Indian plate along Himalayan mountains

- (1) Ocean-Continent Convergence
(2) Divergent boundary
(3) Transform boundary
(4) Continent-continent convergence

Answer (4)

41. The process of formation of seed without the act of fertilization is known as :

- (1) Parthenogenesis
(2) Sporulation
(3) Apomixis
(4) Vegetative reproduction

Answer (3)

42. If the tip of sugarcane plant is removed from the field, even then it keeps on growing in length. It is due to the presence of :

- (1) Cambium (2) Apical Meristem
(3) Lateral Meristem (4) Intercalary Meristem

Answer (4)

43. Which among the following has specialized tissue for conduction of water :

- (i) Thallophyta
(ii) Bryophyta
(iii) Pteridophyta
(iv) Gymnosperms
(1) (i) and (ii) (2) (ii) and (iii)
(3) (iii) and (iv) (4) (i) and (iv)

Answer (3)

44. If pepsin is lacking in gastric juice then which of the following event in stomach will be affected :

- (1) Digestion of starch into sugars
(2) Digestion of fats into glycerol and fatty acids
(3) Digestion of nucleic acids
(4) Digestion of proteins into peptides

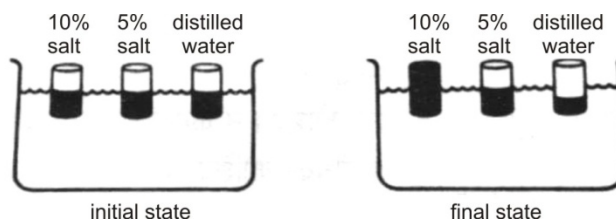
Answer (4)

45. Colourblindness is more common in males than in females due to:

- (1) Dominant gene of such traits lies on Y chromosome
(2) Dominant gene of such traits lies on X chromosome
(3) Recessive gene lies on X chromosome
(4) Recessive gene lies on Y chromosome

Answer (3)

46. Three cylinders each closed by a membrane permeable to water and containing a different fluid are placed in same solution. After adjusting to solution the fluid rises in one of the cylinder, remains the same in another and falls in the third. What is the concentration of the solution in which cylinders have been placed:



- (1) 0% salt solution
(2) 2.5% salt solution
(3) 5% salt solution
(4) 10% salt solution

Answer (3)

47. Mitochondria and chloroplast are:
- Semiautonomous organelles
 - Formed by division of pre existing organelles and the contain DNA but lack protein synthesizing machinery.

Which one of the following option is correct :

- Both (i) and (ii) are correct
- (ii) is true, (i) is false
- (i) is true but (ii) is false
- Both (i) and (ii) are false

Answer (3)

48. Climbers grow towards and around a support is an example of:
- Hydrotropism
 - Geotropism
 - Haptotropism
 - Phototropism

Answer (3)

49. Which of the following statement about transmission of nerve impulse is incorrect:
- Nerve impulse travels from dendritic end towards axonal end
 - At the dendritic end electrical impulses bring about the release of some chemicals which generate an electrical impulse at the axonal end of another neuron
 - The chemicals released from axonal end of one neuron cross the synapse and generate a similar impulse in a dendrite of another neuron
 - A neuron transmits electrical impulses not only to another neuron but also to muscle and gland cell

Answer (2)

50. Which of the following is an example of homologous organs?
- Wings of a bad and butterfly
 - Wings of a bird and a bat
 - Wings of pigeon and a butterfly
 - Forelimbs of cow and lizard

Answer (4)

51. As we travel along the food chain, the concentration of DDT
- Increases
 - Remains constant
 - Decreases
 - Fluctuate randomly

Answer (1)

52. Which among the following statements are true for unisexual flowers?

- They possess both stamens and carpel
 - They possess either stamen or carpel
 - They exhibit cross pollination
 - Unisexual flowers possessing only stamens cannot produce fruits
- (i) and (iv)
 - (ii), (iii) and (iv)
 - (iii) and (iv)
 - (i), (iii) and (iv)

Answer (2)

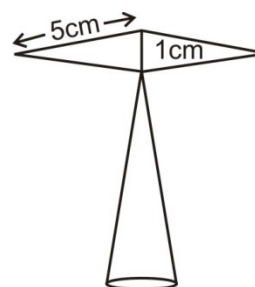
53. Lack of oxygen in muscles often leads to cramps among cricketers. This is due to:
- Conversion of pyruvate to lactic acid
 - Conversion of pyruvate to glucose
 - Non-conversion of glucose to pyruvate
 - Conversion of pyruvate to ethanol

Answer (1)

54. Choose the correct path of urine in our body:
- Kidney → Ureter → Urinary bladder → Urethra
 - Kidney → Ureter → Urethra → Urinary bladder
 - Kidney → Urinary bladder → Urethra → Ureter
 - Urinary bladder → Kidney → Ureter → Urethra

Answer (1)

55. The area of the Blades of the magnetic compass as shown in figure will be: (Take $\sqrt{11} = 3.32$)



- 9 cm²
- 5.58 cm²
- 11 cm²
- 4.98 cm²

Answer (4)

56. By selling 12 oranges for a rupee, a man losses 20%. How many for a rupee should he sell to gain 20%:
- (1) ₹15
 (2) ₹10
 (3) ₹ 8
 (4) ₹ 5

Answer (3)

57. In an Arithmetic Progression, the sum of first 'n' terms is $\frac{3n^2}{2} + \frac{5n}{2}$. Then the 25th term will be:

- (1) 4
 (2) 3
 (3) -4
 (4) 3.5

Answer (No option matches)

58. Probability that a leap year selected at random will contain 53 Sundays is :

- (1) $\frac{2}{7}$
 (2) $\frac{53}{365}$
 (3) $\frac{1}{7}$
 (4) $\frac{7}{365}$

Answer (1)

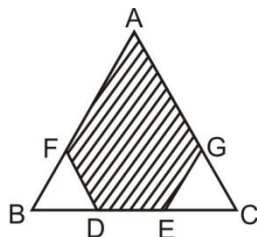
59. If $A + B = 90^\circ$ then $\frac{\tan A \tan B + \tan A \cot B}{\sin A \sec B} - \frac{\sin^2 B}{\cos^2 A}$

is equal to:

- (1) $\cot^2 A$
 (2) $\cot^2 B$
 (3) $-\tan^2 A$
 (4) $-\cot^2 A$

Answer (2)

60. ΔABC is an Equilateral triangle. We have $BD = EG = DF = DE = EC$; then the ratio of the area of the shaded portion to the area of ΔABC is:



- (1) $\frac{4}{11}$
 (2) $\frac{7}{9}$
 (3) $\frac{5}{12}$
 (4) $\frac{6}{7}$

Answer (2)

61. A solid consists of a rectangular cylinder with an exact fitting right circular cone placed on the top. Height of the cone is 'h'. If total volume of the solid is three times the volume of the cone, then the height of the circular cylinder is:

- (1) $\frac{2h}{9}$
 (2) $\frac{2h}{3}$
 (3) $\frac{3h}{2}$
 (4) $\frac{4h}{3}$

Answer (2)

62. An aeroplane is flying horizontally at a height of 3150 m above horizontal plane ground. At a particular instant, it passes another Plane Vertically below it. At this instant, the angles of elevation of the planes from a point on the ground are 30° and 60° . Hence the distance between the two planes at that instant is:

- (1) 1050 m
 (2) 2100 m
 (3) 4200 m
 (4) 5250 m

Answer (2)

63. The compound interest is Rs. 6.40 more than the simple interest. If a sum is lent for 2 years at 8% compound interest. The sum will be:

- (1) ₹ 1800
 (2) ₹ 10,000
 (3) ₹ 800
 (4) ₹ 1000

Answer (4)

64. If a, b, c, d and e are in continuous proportion, then a/e is equal to:

- (1) $\frac{a^3}{b^3}$
 (2) $\frac{a^4}{b^4}$
 (3) $\frac{b^3}{a^3}$
 (4) $\frac{b^4}{a^4}$

Answer (2)

65. The line segment joining the points (3, -4) and (1, 2) is trisected at the points P & Q. If the coordinates of P & Q are (p, -2) & $(\frac{5}{3}, q)$ respectively. Find the values of p & q.

- (1) $p = 0, q = \frac{7}{3}$
 (2) $p = \frac{7}{3}, q = 0$
 (3) $p = 7, q = 3$
 (4) $p = 3, q = 7$

Answer (2)

66. What will be the area of largest triangle that can be inscribed in the semicircle of radius $\frac{r}{16}$

- (1) $16r^2$ (2) $\frac{r^2}{256}$
(3) $\frac{r^2}{64}$ (4) $\frac{r^2}{32}$

Answer (2)

67. If $x + y + z = 0$ & $x \neq 0, y \neq 0, z \neq 0$ then the value of

$$\frac{x^2}{yz} + \frac{y^2}{xz} + \frac{z^2}{xy} \text{ is?}$$

- (1) 0 (2) 1
(3) 2 (4) 3

Answer (4)

68. If $x^2 + y^2 + z^2 = r^2$ where, $x = r \cos a \cos b, y = r \cos a \sin b$ then z has one of the following values.

- (1) $r \cos a$ (2) $r \tan a \cos b$
(3) $r \tan a \tan b$ (4) $r \sin a$

Answer (4)

69. If α & β are the roots of the equation $3x^2 - 5x + 3 = 0$ then the quadratic equation whose roots are $\alpha^2\beta$ and $\alpha\beta^2$ is.

- (1) $3x^2 - 5x + 3 = 0$ (2) $3x^2 - 8x + 5 = 0$
(3) $3x^2 - 8x + 3 = 0$ (4) $3x^2 - 5x - 3 = 0$

Answer (1)

70. The sum of length, breadth and height of cuboid is 19 m, its diagonal is $5\sqrt{5}$ m long. Its surface area is

- (1) 286 m^2 (2) 236 m^2
(3) 226 m^2 (4) 256 m^2

Answer (2)

71. A conical vessel of radius 6 m and height 8 m is completely filled with water. A sphere is lowered into the water and its size is such that when it touches the side, it is just completely immersed. What fraction of water over flowed?

- (1) $\frac{5}{8}$ (2) $\frac{3}{4}$
(3) $\frac{3}{8}$ (4) $\frac{5}{4}$

Answer (3)

72. If a, b, c are the sides of right triangle where C is the hypotenuse, then radius ' r ' of the circle which touches the sides of the triangle is

- (1) $\frac{a+b+c}{2}$ (2) $\frac{a+c-b}{2}$
(3) $\frac{a+b-c}{2}$ (4) $\frac{b+c-a}{2}$

Answer (3)

73. $\triangle ABC$ is right angled at B . AD, CE are the two medians drawn from A and C respectively. If $AD = \frac{3\sqrt{5}}{2}, CE = 2\sqrt{5}$. The value of AC will be

- (1) 13 (2) 5
(3) $12\sqrt{5}$ (4) 12

Answer (2)

74. If two circles are such that the centre of one lies on the circumference of the other then the ratio of common chord of the two circles to the radius of any one of the circle is:

- (1) $2 : 1$ (2) $\sqrt{3} : 1$
(3) $\sqrt{5} : 1$ (4) $4 : 1$

Answer (2)

75. Which of the following is most malleable metal?

- (1) Na (2) Si
(3) Au (4) Pb

Answer (3)

76. When carbon dioxide is passed through lime water then:

- (1) Calcium hydroxide is formed
(2) Colour of lime water disappears
(3) White precipitates of calcium carbonate is formed
(4) White precipitates of calcium oxide is formed

Answer (3)

77. Arrange the following elements in the order of their decreasing metallic character:

- (1) $Cl > Si > Al > Mg > Na$
(2) $Na > Mg > Al > Si > Cl$
(3) $Na > Al > Mg > Cl > Si$
(4) $Al > Na > Si > Ca > Mg$

Answer (2)

78. Meena visited a natural gas compressing unit and found that the gas can be liquefied under specific conditions of temperature and pressure while sharing her experience with friends she got confused. Help her to identify the correct set of conditions.

- (1) Low temperature, Low pressure
(2) High temperature, Low pressure
(3) Low temperature, High pressure
(4) High temperature, High pressure

Answer (3)

79. The scattering of beam of light is shown by _____.

- (1) Mud water
- (2) Milk
- (3) Copper sulphate solution
- (4) NaCl solution

Answer (2)

80. What is the formula of acetone:

- (1) $\text{CH}_3\text{CH}_2\text{COOH}$
- (2) CH_3COCH_3
- (3) $\text{CH}_3, \text{CH}_2\text{CHO}$
- (4) $\text{CH}_3\text{CH}_2\text{COCH}_3$

Answer (2)

81. Match the correct atomic radius with the element

Element	Atomic radius (pm)
(a) Be	(i) 75
(b) C	(ii) 88
(c) O	(iii) 111
(d) B	(iv) 77
(e) N	(v) 74

- (1) (a)-(ii), (b)-(iii), (c)-(v), (d)-(iv), (e)-(i)
- (2) (a)-(iii), (b)-(iv), (c)-(v), (d)-(ii), (e)-(v)
- (3) (a)-(ii), (b)-(iv), (c)-(iii), (d)-(i), (e)-(v)
- (4) (a)-(v), (b)-(iii), (c)-(iv), (d)-(ii), (e)-(i)

Answer (2)

82. 22 carat gold means

- (1) 20 parts of pure gold alloyed with 2 parts of Cu or Ag
- (2) 22 parts of pure gold alloyed with 2 parts of Cu or Zn
- (3) 21 parts of pure gold alloyed with 1 parts of Cu or Ag
- (4) 22 parts of pure gold alloyed with 2 parts of Cu or Ag

Answer (4)

83. Anodising is a process of forming a thick oxide layer of _____.

- (1) Zinc
- (2) Aluminium
- (3) Copper
- (4) Tin

Answer (2)

84. Which of the following element does not have allotrope

- (1) P
- (2) B
- (3) Bi
- (4) S

Answer (3)

85. Which of following combination about acids is incorrect

- (1) Ethanoic acid Vinegar
- (2) Citric acid Orange
- (3) Carbonic acid Soft Drinks
- (4) Lactic acid Tea

Answer (4)

86. Which is chemically most active non-vetal.

- (1) Br_2
- (2) N_2
- (3) O_2
- (4) F_2

Answer (4)

87. A ball is released from the top of a tower of height h meter. It takes T seconds to reach the ground. What is the position of the ball at $T/3$ second ?

- (1) $\frac{8h}{9}$ m from the ground
- (2) $\frac{7h}{9}$ m from the ground
- (3) $\frac{h}{9}$ m from the ground
- (4) $\frac{17h}{18}$ m from the ground

Answer (1)

88. Two bodies have masses $2m$ and m . Their Kinetic energies are in the ratio 8:1. Their linear momentum are in the ratio of

- (1) 1 : 1
- (2) 2 : 1
- (3) 4 : 1
- (4) 8 : 1

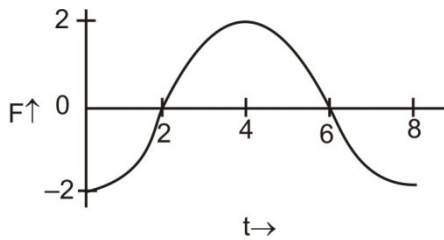
Answer (3)

89. Water is pouring down from a waterfall at the rate of 75 kg/s on the blades of a turbine. If the height of the fall is 100 m, then power delivered to the turbine is nearly

- (1) 95 kw
- (2) 75 kw
- (3) 100 kw
- (4) 0 kw

Answer (2)

90. A force-time graph for a linear motion is shown. The linear momentum changed between 0 and 8 second is



- (1) -2π Ns (2) Zero
(3) 4π Ns (4) 6π Ns

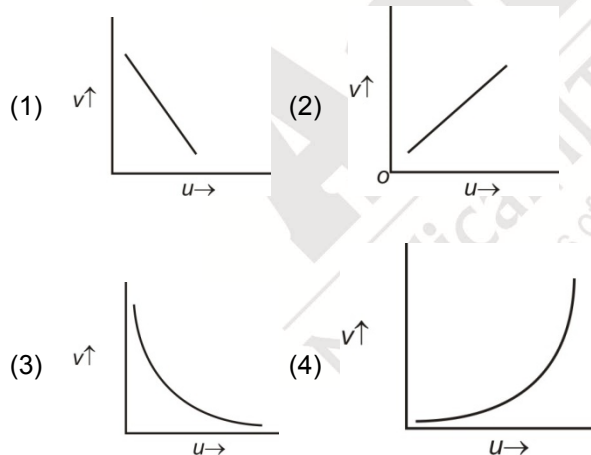
Answer (2)

91. The length of a given cylindrical wire is increased by 100%. Due to consequent decrease in diameter, the change in the resistance of the wire will be

- (1) 200%
(2) 100%
(3) 50%
(4) 300%

Answer (4)

92. In an experiment to find the focal length of a concave mirror, a graph is drawn between magnitude of u and v . The graph looks like



Answer (3)

93. Two circular coils of diameter 10 cm and 20 cm have same number of turns. The ratio of magnetic field inductions produced at the centres of coils when connected in series is

- (1) 1 : 2
(2) 3 : 2
(3) 2 : 1
(4) 2 : 3

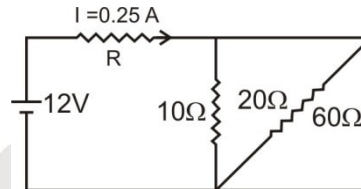
Answer (3)

94. Green light of wavelength 5460\AA is incident on an air-glass interface. If the refractive index of glass is 1.5, the wavelength of light in glass would be (given velocity of light in air $c = 3 \times 10^8 \text{ ms}^{-1}$)

- (1) 3640\AA (2) 5460\AA
(3) 4861\AA (4) None of the above

Answer (1)

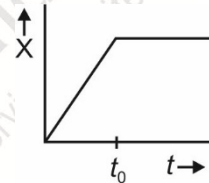
95. What is the value of R in the circuit given below if the current passing through the battery is 0.25 A.



- (1) $42\ \Omega$ (2) $62\ \Omega$
(3) $84\ \Omega$ (4) None of these

Answer (1)

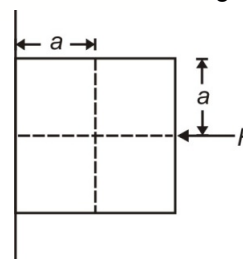
96. Figure shows the displacement-time graph of a particle moving along X-axis.



- (1) The particle is continuously going in positive x-direction
(2) The particle is at rest.
(3) The velocity increases upto time ' t_0 ' and then becomes constant.
(4) The particle moves at a constant velocity upto time ' t_0 ' and then stops.

Answer (4)

97. A block of mass m is at rest under the action of force F against a wall as shown in figure.



Which of the following statement is incorrect?

- (1) $f = mg$ (where f is the frictional force)
(2) $F = N$ (where N is the normal force)
(3) F will not produce torque
(4) N will not produce torque

Answer (4)

98. A hot and cold body are kept in vacuum separated from each other. Which of the following causes decreases in temperature of the hot body?

- (1) Radiation
- (2) Convection
- (3) Conduction
- (4) Temperature remains unchanged

Answer (1)

99. A man is standing at the middle point between two cliffs. On clapping his hands, a series of echoes are heard at the interval of 1 sec. If the speed of sound is 350 m/s, the distance between the two cliffs is

- (1) 175 m
- (2) 350 m
- (3) 725 m
- (4) 700 m

Answer (2)

100. A rubber ball filled with water is having a small hole. This is used as the bob of a simple pendulum. Then, the period of such a pendulum

- (1) Decreases
- (2) First increases then decreases
- (3) First decreases then increases
- (4) Increases

Answer (2)



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