Based on Memory

SSC

Held on - 16-01-17
Shift-II

SSC CHSL (10 + 2) TIER-I CBE (EXAM)

SOLVED PAPER

GENERAL INTELLIGENCE

1. Select the related word from the given alternatives :
India : Tiger :: Nepal : ?
(1) Peacock   (2) Dolphin
(3) Tiger   (4) Cow

2. Select the related letters from the given alternatives :
DANGEROUS : SOUREGNAD :: ? : RETHGUAD
(1) DAUGGARD
(2) DAUGHTER
(3) DORMANT
(4) DAUGHTRE

3. Select the related letters from the given alternatives :
APPEAR : FUUJFW :: GRIND : ?
(1) LWNSI   (2) ISNWL
(3) LNWSI   (4) LINWS

4. Select the related number from the given alternatives :
9 : 738 :: 10 : ?
(1) 1200   (2) 1001
(3) 1100   (4) 1010

5. Select the odd word form the given alternatives :
(1) Elephant   (2) Giraffe
(3) Cow   (4) Hen

6. Select the odd letters from the given alternatives :
(1) AG   (2) CE
(3) BF   (4) GF

7. Select the odd number from the given alternatives :
(1) 23498   (2) 9494
(3) 6946   (4) 15578

8. Select the odd number from the given alternatives :
(1) 1541   (2) 4096
(3) 1331   (4) 4913

9. A series is given with one term missing. Choose the correct alternatives from the given ones that will complete the series :
Jaipur, Rajasthan, India, ?
(1) Europe   (2) Antarctica
(3) Asia   (4) Australia

10. A series is given with one term missing. Choose the correct alternatives from the given ones that will complete the series :
YXW, TSR, NML, ?
(1) EFG   (2) GFE
(3) FEG   (4) HGF

11. A series is given with one term missing. Choose the correct alternative from the given ones that will complete the series :
B, D, H, P, ?
(1) E   (2) D
(3) C   (4) F

12. A series is given with one term missing. Choose the correct alternative from the given ones that will complete the series :
8, 27, 125, 343, ?
(1) 1000   (2) 729
(3) 1331   (4) 1728

11. In the following question, two statements are given each followed by two Conclusions I and II. You have to consider the statements to be true even if they seem to be at variance from commonly known facts. You have to decide which of the given Conclusions, if any, follows from the given statements.
Statements :
I. Sohan is a good sportsman.
II. Sportsmen are healthy.
Conclusions :
I. All healthy people are sportsmen.

II. Sohan is healthy.
(1) Conclusion I follows
(2) Conclusion II follows
(3) Neither I nor II follows
(4) Both I and II follow

14. Priya, Juhi, Amit, Nitin and Ram are five friends studying in the same class. Juhi scores higher marks than Ram but lesser than Priya. Nitin scores the highest and Ram scores the lowest marks. If Amit secures second rank out of the five, who stands at the third position ?
(1) Ram   (2) Juhi
(3) Priya   (4) Nitin

15. Arrange the given words in the sequence in which they occur in the dictionary.
i. Garbage   ii. Garrulous
iii. Gabber   iv. Garble
(1) i, iii, iv, ii   (2) iii, iv, i, ii
(3) iii, i, iv, ii   (4) i, iv, iii, ii

16. In a certain code language, "READ" is written as "18514". How is "RATE" written in that code language ?
(1) 181520   (2) 181025
(3) 181205   (4) 181914

17. In the following question select the missing number from the given alternatives :

17	15	13
8	?	11
353	274	290

(1) 4   (2) 8
(3) 9   (4) 7

18. If "A" means "minus", "B" means "divided by", "C" means "plus" and "D" means "multiplied by", then

54 B 6 A 4 C 2 D 5 = ?

(1) 15   (2) 21

(3) 16   (4) 18

19. Which set of letters when sequentially placed at the gaps in the given letter series shall complete it ?

   a_b_cc_aa_a_b_c

   (1) *ababc*   (2) *aacbb*

   (3) *abcab*   (4) *abbcc*

20. Preetam cycles 6 km. towards the south direction. He turns right to move 8 km, and again turns towards the north-east to move 10 km. From there, he moves 15 km on the left. How far is he from his original position ?

   (1) 15 km.   (2) 10 km.

   (3) 55 km.   (4) 65 km.

21. A word is represented by only one set of numbers as given in any one of the alternatives. The sets of numbers given in the alternatives are represented by two classes of alphabet as shown in the given two matrices. The columns and rows of Matrix – I are numbered from 0 to 4 and that of MatixII are numbered from 5 to 9. A letter from these matrices can be represented first by its row and next by its column, for example, 'D' can be represented by 01, 10 etc. and 'R' can be represented by 34, 22 etc. Similarly, you have to identify the set for the word 'DREAM'.

Matrix-I

	0	1	2	3	4
0	A	D	Q	M	R
1	D	T	W	R	W
2	S	H	R	B	E
3	F	R	E	V	R
4	R	E	G	C	F

Matrix-II

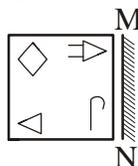|	5	6	7	8	9
5	H	E	Z	A	T
6	E	G	A	D	Y
7	K	A	X	G	M
8	A	B	C	M	W
9	K	V	M	H	Q

(1) 98, 40, 85, 19, 20

(2) 01, 04, 42, 76, 98

(3) 68, 34, 24, 00, 88

(4) 11, 04, 24, 41, 88

22. Introducing a girl, Raju says, "She is the daughter of my grandfather's son's daughter". How is the girl related to Raju ?

   (1) Cousin   (2) Wife

   (3) Sister   (4) Niece

23. If a mirror is placed on the line MN, then which of the answer figures is the right image of the given figure ?

Questions Figure :

Answer Figures :

24. Identify the diagram that best represents the relationship among the given classes.

   Earth, Planets, Moon

25. A piece of paper is folded and punched as shown below in the question figures. From the given answer figures, indicate how it will appear when opened.

Questions Figures :

Answer Figures :

General Awareness

26. Which world heritage site comprises of the Alai Darwaza Gate ?

   (1) Humayun's Tomb

   (2) Mahabodhi Temple Complex

   (3) Qutub Minar

   (4) Red Fort Complex

27. Highest Civilian Honour received by Azim Premji is

   (1) Padma Shri

   (2) Padma Bhusan

   (3) Padma Vibhushan

   (4) Bharat Ratna

28. Which drug is used as an Anti-Diabetic drug ?

   (1) Metformin   (2) Zolpidem

   (3) Promethazine (4) Hydralazine

29. Photosynthesis takes place inside plant cells in _____.

   (1) Ribosomes

   (2) Chloroplasts

   (3) Nucleus

   (4) Mitochondria

30. _____ is the cell organelle, in which the biochemical processes of respiration and energy production occur.

   (1) Mitochondria

   (2) Chloroplast

   (3) Ribosomes

   (4) Nucleus

31. LPG is a mixture of _____.

   (1) methane and butane

   (2) butane and propane

(3) methane and propane
(4) ethane and propane

32. What happens when one S and one P orbital are hybridized ?
(1) We get three orbitals in a plane
(2) We get two orbitals at 180 degrees
(3) We get two mutually perpendicular orbitals
(4) We get four orbitals directed tetrahedrally

33. A formal language used to express information or knowledge, often for use in computer system design is :
(1) Command Language
(2) Machine Language
(3) Markup Language
(4) Modelling Language

34. Konkani is the official language of
_____.
(1) Chandigarh
(2) Dadra and Nagar Haveli
(3) Daman and Diu
(4) Delhi

35. If demand curve for racing cycles is D = 80200 – 13P and supply curve is S = 6200 + 12P, what is the equilibrium Quantity ?
(1) 2960 units   (2) 31220 units
(3) 8750 units   (4) 41720 units

36. Match the characteristics with their market structure :
(a) MC = Price
(b) Firm will tend to set output so that it earns maximum profits.
(1) (a) Pure Competition, (b) Pure Monopoly
(2) (a) Pure Monopoly, (b) Monopolisitic Competition
(3) (a) Oligopoly, (b) Monopolistic Competition
(4) (a) Pure Competition, (b) Oligopoly

37. To which habitat is the turtle Petri adapted ?
(1) Desert   (2) Forest
(3) Sea   (4) Marshes

38. Bandipur National Park is in which State ?
(1) Mdhya Pradesh
(2) Rajasthan
(3) Karnataka
(4) Chhattisgarh

39. Which is the first newspaper of India ?
(1) Bombay Gazette
(2) Bengal Gazette
(3) Bombay Times
(4) Hindustan Times

40. Which State in India has the longest coastlines ?
(1) Kerala   (2) Tamil Nadu
(3) Maharashtra (4) Gujarat

41. London is the Capital City of
(1) Philippines
(2) Maldives
(3) Spain
(4) United Kingdom

42. Adolf Hitler was from _____.
(1) France
(2) Germany
(3) United Kindgom
(4) Spain

43. Babur (1526-1530 AD) was the ruler of which dynasty ?
(1) Mughal   (2) Nanda
(3) Maurya   (4) Haryanka

44. What did J.B. Dunlop invent ?
(1) Pneumatic rubber tyre
(2) Car Music System
(3) Steering Wheel
(4) Diesel Engine

45. When net torque is zero, _____ will be constant.
(1) force
(2) angular momentum
(3) linear momentum
(4) acceleration

46. Newton's first law is also known as _____.
(1) Law of Friction
(2) Law of Momentum
(3) Law of Inertia
(4) Law of Motion

47. The tenure of the members of Lok Sabha is for how many years ?
(1) 11   (2) 9
(3) 7   (4) 5

48. Article 41 of the Indian Constitution "Right of work, to education and to public assistance in certain cases" deals with :
(1) the Union Government
(2) the Directive Principles of State Policy
(3) the State Government
(4) the Fundamental Rights of the India citizens

49. Anju Bobby Geogre is associated with which game ?
(1) Shooting   (2) Athletics
(3) Chess   (4) Cricket

50. Who wrote the book – "The Test of My Life"?
(1) Yuvraj Singh
(2) Sachin Tendulkar
(3) Brian Lara
(4) Adam Gilchrist

QUANTITATIVE APTITUDe

51. The price of an article is cut by 31%, to restore to its original value, the new price must be increased by
(1) 61 per cent
(2) 44.93 per cent
(3) 39.76 per cent
(4) 82.5 per cent

52. If cot 240° = x, then the value of x is
(1) -1 (2) $\dfrac{-1}{\sqrt{3}}$

(3) $\dfrac{1}{\sqrt{3}}$ (4) $-\sqrt{3}$

53. Akka can bake 100 cakes in 20 hours, Akka and Tai together can bake 75 cakes in 10 hours. How many cakes Tai can bake in 20 hours ?
(1) 25   (2) 50
(3) 30   (4) 75

54. Among three numbers, the first is twice the second and thrice the third. If the average of three numbers is 396, then what is the difference between the first and the third number ?
   (1) 594   (2) 448
   (3) 432   (4) 453

55. The point Q (a, b) is first reflected in y-axis to Q1 and Q1 is reflected in x-axis to (-5, 3). The co-ordinates of point Q are
   (1) (-5, -3)   (2) (5, 3)
   (3) (-5, 3)   (4) (5, -3)

56. Raghavendra sells a machine for Rs. 43 lakhs at a loss. Had he sold if for Rs. 52 lakh, his gain would have been 5 time s the former loss. Find the cost price of the machine.
   (1) Rs. 50.5 lakh   (2) Rs. 60.6 lakh
   (3) Rs. 44.5 lakh   (4) Rs. 38.5 lakh

57. If $\sqrt{\left(\sec^2 A - 1\right)} = x$ then the value of x is
   (1) Cot A   (2) tan A
   (3) cosec A   (4) cos A

58. To cover a distance of 234 km. in 1.6 hours what should be the average speed of the car in metre/second ?
   (1) 40.625 metre/second
   (2) 146.25 metre/second
   (3) 73.125 metre/second
   (4) 81.25 metre/second

59. What is the value of $\dfrac{\cos^2 A}{\left(1 + \sin A\right)}$?
   (1) $1 + \sin A$ (2) $1 - \sin A$
   (3) $1 - \sec A$ (4) $1 + \sec A$

60. If $2x - 2\,(x - 2) < 5 - x > -2x + 2$; then the value of x is
   (1) 0   (2) 2
   (3) 3   (4) -4

61. Marked price of an item is Rs. 900. On purchase of 2 items discount is 16%, on purchase of 5 items discount is 44%. Raksha buys 7 items, what is the effective discount ?

   (1) 10 per cent   (2) 16 per cent
   (3) 36 per cent   (4) 9.6 per cent

62. If $(6x - 5) = (4x + 7)$, then the numerical value of $(x + 1)^3$ is
   (1) 216   (2) 125
   (3) 64   (4) 343

63. The points A (3, –2), B (1, 4) and C (–2, x) are collinear. What is the value of x ?
   (1) 13   (2) – 2
   (3) 5   (4) 3

64. In an army selection process, the ratio of selected to unselected was 5 : 1. If 100 less had applied and 20 less selected, the ratio of selected to unselected would have been 6 : 1. How many candidates had applied for the process ?
   (1) 5520   (2) 2760
   (3) 1380   (4) 8280

65. If $xy = 48$ and $x^2 + y^2 = 100$, then $(x + y)$ is
   (1) 12   (2) 16
   (3) 18   (4) 14

66. An angle is $\dfrac{1}{3}$ rd of its supplementary angle. Find the measure of the angle ?
   (1) 45°   (2) 90°
   (3) 135°   (4) 22.5°

67. If $\left(\dfrac{5}{9} \text{ of } x\right) - \left(\dfrac{2}{5} \text{ of } \dfrac{9}{4}\right)$ equals $-\dfrac{4}{5}$, then find x,
   (1) 0.18   (2) 0.12
   (3) 2   (4) 0.54

68. In an isosceles trapezium _____.
   (1) Diagonals are congruent
   (2) Opposite sides are parallel
   (3) Diagonals are bisectors of each other
   (4) Diagonals bisect opposite angles

69. There is 40% increase in an amount in 10 years at simple interest. What

will be the compound interest of Rs. 30000 after 3 years at the same rate ?
   (1) Rs. 3745.92
   (2) Rs. 7491.84
   (3) Rs. 9364.8
   (4) Rs. 5618.88

70. A number is greater than thrice its reciprocal by $\dfrac{26}{3}$. What is the number ?
   (1) 10   (2) 11
   (3) 9   (4) 8

71. The cross section of a canal is in the shape of an isosceles trapezium which is 4 metre wide at the bottom and 5 metre wide at the top. If the depth of the canal is 2 metre and it is 120 metre long, what is the maximum capacity of this canal ?
   (1) 2160 cubic metre
   (2) 3240 cubic metre
   (3) 4320 cubic metre
   (4) 1080 cubic metre

72. Refer the following data table and answer the question.

	Boys	Girls
Medical	70	80
Engineering	80	40

What per cent of students who choose Engineering are girls ?
   (1) 26.32   (2) 12.5
   (3) 25   (4) 33.33

73. Refer the following data table and answer the question.

	Cumulative production
January	690
February	1340
March	2040
April	2710
May	3150
June	3520

How many cars were manufactured in the months of April and May ?

4

(1) 910 (2) 1270
(3) 6660 (4) 1110

74. Refer the following data table and answer the question

Day of the week	Distance jogged (in kms.)
Monday	5
Tuesday	3
Wednesday	3.5
Thursday	6
Friday	2
Saturday	3.5
Sunday	5

If 400 calories are burnt by jogging 5 km, how many calories were burnt in the given week?
(1) 1680 calories
(2) 1580 calories
(3) 1590 calories
(4) 2240 calories

75. Refer the following data table and answer the question

Items	Yearly Expense in Rs. lakhs
Raw Materials	12
Labour	8
Rent	6
Interest	2
Taxes	4

Expenditure on raw material and taxes is what percent of total expenses ?
(1) 46 per cent (2) 44 per cent
(3) 52 per cent (4) 50 per cent

ENGLISH COMPREHENSION

76. Select the synonym of **to theorize**.
(1) to measure (2) to prove
(3) to speculate (4) to calculate

77. Rearrange the parts of the sentence in correct order.
To write in plan vigorous language
P. one has to think fearlessly, and if

Q. one thinks fearlessly
R. one cannot be politically orthodox
(1) QRP (2) PQR
(3) RPQ (4) QPR

78. In the following question, the sentence given with blank is to be filled in with an appropriate word. Select the correct alternative out of the four.
No parents can _____ to see their ward waste their potential.
(1) visualize (2) predict
(3) envisage (4) afford

79. In the following question, a sentence has been given in Direct/Indirect speech. Out of the four alternatives suggested, select the one, which best expresses the same sentence in Indirect/Direct speech.
Abhay said, "I will go to Surat tomorrow".
(1) Abhay said that he would go to Surat the next day.
(2) Abhay said he would go to Surat tomorrow.
(3) Abhay said he will be going to Surat the next day.
(4) Abhay said that he would go to Surat tomorrow.

80. Improve the bracketed part of the sentence
The **(needs)** of the hour was to reform the entire banking system.
(1) need
(2) needing
(3) needings
(4) No improvement

81. In the following question, a sentence has been given in Active/Passive voice. Out of four alternatives suggested, select the one, which best expresses the same sentence in Passive/Active voice.
They are going to watch a drama tomorrow.
(1) A drama is going to be watched by them tomorrow.
(2) A drama will be watched by them tomorrow.

(3) A drama was going to be watched by them tomorrow.
(4) Tomorrow the drama is going to be watched by them.

82. In the following question, the sentence given with blanks is to be filled in with an appropriate word. Select the correct alternative out of the four.
The minister appealed to the public not to _____ to violence.
(1) criticize (2) provoke
(3) resort (4) influence

83. Select the antonym of ambushed.
(1) lurk (2) waylay
(3) camouflage (4) exposed

84. Rearrange the parts of the sentence in correct order.
Elections are likely to be held
P. in 2017 once law and order
Q. time frame has been set
R. is restored though no
(1) PRQ (2) PQR
(3) QPR (4) RPQ

85. In the following question, out of the four alternatives, select the alternative which is the best substitute of the phrase.
wide in range or effect
(1) sweeping (2) exaggerate
(3) exclusive (4) superficial

86. Choose the word with the correct spelling.
(1) toxisity (2) traducer
(3) rubycund (4) impeeding

87. In the following question, out of the four alternatives, select the alternative which is the best substitute of the phrase.
To treat with cruelty or violence
(1) wrong (2) abuse
(3) pervert (4) fault

88. Improve the bracketed part of the sentence.
One minute they're all sweet **(but)** caring and the next minute they stab you in the back.
(1) if (2) and

(3) only   (4) not

89. In the following question, some part of the sentence may have errors. Find out which part of the sentence has an error and select the appropriate option. If the sentence is free from error, select 'No Error'.

If I had remembered (1)/ this it will have (2)/ prevented some mistakes. (3)/ No error (4)

90. In the following question, out of the four alternatives, select the alternative which best expresses the meaning of the idiom/phrase.

Too many cooks spoil the broth

(1) It is always better to do a job independently

(2) Asking many people for advice will cause confusion, and the decision will never be made

(3) If too many people are involved in a task or activity, it will not be done well

(4) Food is always cooked better if one person cooks it

91. Select the word with the correct spelling.

(1) litigate   (2) diatrybe
(3) cloyster   (4) griemiest

92. Select the antonym of **malingnant**.
(1) mortal   (2) internecine
(3) benign   (4) lethal

93. In the following question, some part of the sentence may have errors. Find out which part of the sentence has an error and select the appropriate option. If a sentence is free from error, select 'No Error'.

It was being hard to believe (1)/ that my brother could be (2)/ involved with anything so sinister. (3)/ No erro (4)

94. In the following question, out of the four alternatives, select the alternative which best expresses the meaning of the idiom/phrase.

Easy come, easy go

(1) If you forcibly tie up a person will run away

(2) No matter what, one should never lose temper

(3) Every task is easy for a talented person

(4) Something acquired without effort may be lost without regret

95. Choose the synonym of **to thrash**.
(1) to pin   (2) to grasp
(3) to pinch   (4) to beat up

Directions (96-100) : *In the following passage some of the words have been left out. Read the passage carefully and select the correct answer for the given blank out of the four alternatives.*

The battle between attackers and the attacked is becoming still more **(96)**. Faced with potentially new cyber **(97)**, the danger to India's economic and national security is going **(98)** geometrical progression. To be forearmed, with **(99)** offensive cyber operations and **(100)** cyber security, is essential.

96. (1) stronger   (2) asymmetric
(3) inclined   (4) strange

97. (1) onslaughts
(2) attack
(3) world
(4) intrusions

98. (1) down as   (2) down for
(3) up on   (4) up in

99. (1) the two   (2) both
(3) either   (4) neither

100. (1) more stronger
(2) strongest
(3) strengthened
(4) strengthening

1. (4) The national animal of India is Tiger. Similarly, the national animal of Nepal is cow.

2. (2) DANGEROUS → SUOREGNAD
(Reverse)
similarly,
DAUGHTER → RETHGUAD

3. (1)

A $\xrightarrow{+5}$ F, P $\xrightarrow{+5}$ U, P $\xrightarrow{+5}$ U, E $\xrightarrow{+5}$ J, A $\xrightarrow{+5}$ F, R $\xrightarrow{+5}$ W

similarly

G $\xrightarrow{+5}$ L, R $\xrightarrow{+5}$ W, I $\xrightarrow{+5}$ N, N $\xrightarrow{+5}$ S, O $\xrightarrow{+5}$ I

4. (4) $9 \times (9 \times 9 + 1) = 9 \times 82 = 738$

similarly,

$10 \times (10 \times 10 + 1) = 10 \times 101 = 1010$

5. (4) Except, Hen, all other are animals. Hen is a bird.

6. (4)

A $\xrightarrow{+6}$ G, C $\xrightarrow{+2}$ E, B $\xrightarrow{+4}$ F, but G $\xrightarrow{-1}$ F

7. (3) $23498 \to 2+3+4+9+8 = 26$
$9494 \to 9+4+9+4 = 26$
$15578 \to 1+5+5+7+8 = 26$
but $6946 \to 6+9+4+6 = 25$

8. (2) The number 4096 is perfect square of 64. Again except the number 4096, all other are odd numbers.

9. (3) Jaipur is in Rajasthan. Rajashthan is a state of India. India is an Asian country.

10. (2)

Y $\xrightarrow{-5}$ T $\xrightarrow{-6}$ M $\xrightarrow{-7}$ G
X $\xrightarrow{-5}$ S $\xrightarrow{-6}$ M $\xrightarrow{-7}$ F
W $\xrightarrow{-5}$ R $\xrightarrow{-6}$ L $\xrightarrow{-7}$ E

11. (4) B $\xrightarrow{+2}$ D $\xrightarrow{+4}$ H $\xrightarrow{+8}$ P $\xrightarrow{+16}$ F

12. (3) $2^3 = 8$
$3^3 = 27$
$5^3 = 125$
$7^3 = 343$
$11^3 = 1331$ {The sequence is based on the cubes of consecutive prime numbers}.

13. (3) Neither conclusion I nor II follows.

14. (3) Priya > Juhi > Ram
Nitin > Amit > Priya > Juhi > Ram
Priya stands at the third position.

15. (3) Arrangement of words as per order in the dictionary : -
Gabber → Garbage → Garble → Garrulous

16. (3)

R E A D
↓ ↓ ↓ ↓
18 5 1 4

Position number in the English alphabetical series.
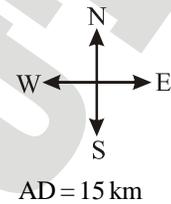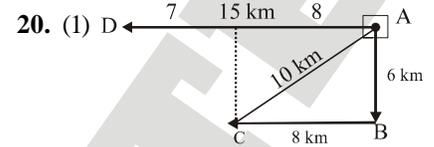Therefore,

R A T E
↓ ↓ ↓ ↓
18 1 20 5

17. (4) First coloumn → $17^2 + 8^2 = 353$
Second coloumn
→ $15^2 + (?)^2 = 284$
$\Rightarrow (?)^2 = 274 - 225$
$? = 7$
Third coloumn → $13^2 + 11^2 = 290$

18. (1)

A → −	B → ÷
C → +	D → ×

54 B 6 A 4 C 2 D 5
$\Rightarrow 54 \div 6 - 4 + 2 \times 5$
$\Rightarrow 9 - 4 + 10 = 15$

19. (1) $a\boxed{ab}bcc / \boxed{aa}bb\boxed{c}c$

20. (1)

AD = 15 km

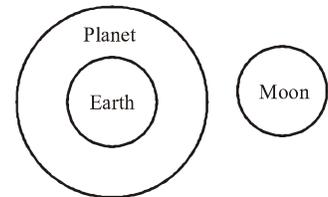**21.** (3) D → 01, 10, 68
R → 04, 13, 22, 31, 34, 40
E → 24, 32, 41, 56, 65
A → 00, 58, 67, 76, 85
M → 03, 79, 88

option	D	R	E	A	M
(i)	96	40	85	19	20
(ii)	01	04	42	76	98
(iii)	68	34	24	00	88
(iv)	11	04	24	41	80

22. (4) The daughter of Raju's grandfather's son means sister or cousin of Raju.
The daughter of Raju's sister or cousin would be niece of Raju.

23. (2)

24. (1) Earth is a planet. Moon is a satellite.

25. (2)

26. (3)	**27.** (3)	**28.** (1)	**29.** (2)
30. (1)	**31.** (2)	**32.** (2)	**33.** (4)
34. (3)	**35.** (4)	**36.** (1)	**37.** (3)
38. (3)	**39.** (2)	**40.** (2)	**41.** (4)
42. (2)	**43.** (1)	**44.** (1)	**45.** (2)
46. (3)	**47.** (4)	**48.** (2)	**49.** (2)
50. (1)			

51. (2) Required percentage increase

$$= \frac{31}{100 - 31} \times 100$$

$$= \frac{3100}{69} \simeq 44.93\%$$

52. (3) $x = \cot 240$

$$= \cot(180 + 60)$$

$$= \cot 60$$

$$= \frac{1}{\sqrt{3}}$$

53. (2) Number of cakes baked in 1 hour by

Akka $\rightarrow \dfrac{100}{20} = 5$

Akka + Tai $\rightarrow \dfrac{75}{10} = 7.5$

∴ Number of cakes baked by Tai in 1 hour = 7.5 − 5 = 2.5

∴ Number of cakes baked by Tai in 20 hours = 20 × 2.5 = 50
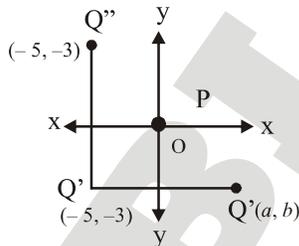
54. (3) Third number = x
First number = 3x

Second number $= \dfrac{3x}{2}$

∴ $3x + \dfrac{3x}{2} + x = 396 \times 3$

$x = 216$

∴ Required difference
= 2x = 2 × 216 = 432

55. (4)

Clearly Q (a, b) is in fourth quadrant.
∴ co-ordinate of Q = (5, −3)

56. (3) If the loss in the first case be `x lakh then $x + 5x = 52 - 43$

$x = 1.5$ lakh
∴ C.P of machine
= 43 + 1.5 = 44.5 lakh

57. (2) $x = \sqrt{\sec^2 A - 1} = \tan A$

58. (1) Speed of car $= \dfrac{234}{1.6}$ km/h

$$= \frac{234}{18} \times 10 \times \frac{5}{18} \text{ m/s}$$

$$= 40.625 \text{ m/s}$$

59. (2) $\dfrac{\cos^2 A}{1 + \sin A} = \dfrac{(1 + \sin A)(1 - \sin A)}{(1 + \sin A)}$

$$= 1 - \sin A$$

60. (1) $2x - 2(x - 2) < 5 - x$

$4 < 5 - x$

$5 - x > 4$

$x - 5 < -4$

$x < 1$

again

$5 - x > -2x + 2$

$5 > -x + 2$

$x - 2 > -5$

$x > -3$

∴ $-3 < x < 1$

61. (3) Let the marked price of each article be `100
∴ Discount on 5 articles

$$= \frac{500 \times 44}{100} = 220$$

Discount on 2 articles

$$= \frac{200 \times 16}{100} = 32$$

Total discount = 220 + 32 = 252
If effective discount be x% then

$$700 \times \frac{x}{100} = 252$$

$x = 36\%$

62. (4) $6x - 5 = 4x + 7$

$x = 6$

∴ $(x + 1)^3 = (6 + 1)^3 = 343$

63. (1) If A, B and C are collinear, then

$$x_1(y_2 - y_3) + x_2(y_3 - y_1)$$

$$+ x_3(y_1 - y_2) = 0$$

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

$2x = 26$

$x = 13$

64. (2) First case,
Selected candidate = 5x
unselected candidate = x
Second case,
Total applicants = 6x − 100
selected candidates = 5x − 20
unselected candidates
= 6x − 100 − 5x + 20
= x − 80

∴ $\dfrac{5x - 20}{x - 80} = \dfrac{6}{1}$

$x = 460$
∴ Original number of candidates
= 6x = 6 × 460 = 2760

65. (4) $xy = 48$

$$x^2 + y^2 = 100$$

$$(x + y)^2 = x^2 + y^2 + 2xy$$

$$(x + y)^2 = 100 + 2 \times 48$$

$$(x + y)^2 = 196$$

$$x + y = 14$$

66. (1) Let the required angle be x
∴ Supplementary angle
= 180 − x
According to question

$$x = \frac{1}{3}(180 - x)$$

$x = 45°$

67. (1) According to question

$$\frac{5x}{9} - \frac{9}{4} \times \frac{2}{5} = \frac{-4}{5}$$

$$\frac{5x}{9} - \frac{9}{10} = \frac{-4}{5}$$

$$\frac{5x}{9} = \frac{9}{10} - \frac{4}{5}$$

$$\frac{5x}{9} = \frac{9-8}{10}$$

$$5x = \frac{9}{10}$$

$$x = \frac{9}{50} = 0.18$$

68. (1) In an isosceles trapezium diagonals are equal.

69. (1) Rate of interest

$$= \frac{40}{10} = 4\% \text{ per annum}$$

$\therefore$ Compound Interest

$$= P\left[\left(1 + \frac{R}{100}\right)^n - 1\right]$$

$$= 30000\left[\left(1 + \frac{4}{100}\right)^3 - 1\right]$$

$$= 30000\left[(1.04)^3 - 1\right]$$

$$= 30000[1.125 - 1]$$

$$= 30000 \times 0.125 = `3750$$

$\therefore$ Required answer = `3745.92

70. (3) Let the required no. be x.
According to question

$$x - \frac{3}{x} = \frac{26}{3}$$

$$3x^2 - 9 = 26x$$

$$3x^2 - 26x - 9 = 0$$

$$(3x + 1)(x - 9) = 0$$

$$\boxed{x = 9}, x \neq \frac{-1}{3}$$

71. (4) Required volume = Length × ang. width × depth

$$= 120 \times \left(\frac{4+5}{2}\right) \times 2 \text{ m}^3$$

$$= 1080 \text{ m}^3$$

72. (4) Required percent

$$= \frac{40}{120} \times 100 = 33.33\%$$

73. (4) Respective production :-
January $\rightarrow$ 69
February $\rightarrow$ 1340 − 690 = 650
March $\rightarrow$ 2040 − 1340 = 700
April $\rightarrow$ 2710 − 2040 = 670
May $\rightarrow$ 3150 − 2710 = 440
$\therefore$ Total production of cars in April and May
$$= 670 + 440 = 1110$$

74. (4) Total distance covered
$$= (5 + 3 + 3.5 + 6 + 2 + 3.5 + 5) \text{ km}$$
$$= 28 \text{ km}$$
$\because$ 5 km _____ 400 calories

$\therefore$ 28km _____ $\dfrac{400}{5} \times 28$

$$= 2240 \text{ calories}$$

75. (4) Total expenditure
$$= 12 + 8 + 6 + 2 + 4 = 32 \text{ lakhs}$$
Expenditure on raw materials and taxes = 16 lakh
$\therefore$ Required percent

$$= \frac{16}{32} \times 100 = 50\%$$

76. (3)	**77.** (2)	**78.** (4)	**79.** (1)
80. (1)	**81.** (1)	**82.** (3)	**83.** (4)
84. (1)	**85.** (1)	**86.** (2)	**87.** (2)
88. (2)	**89.** (2)	**90.** (3)	**91.** (1)
92. (3)	**93.** (1)	**94.** (4)	**95.** (4)
96. (2)	**97.** (1)	**98.** (4)	**99.** (2)
100. (3)			