



SSC CGL TIER-1 MODEL PAPER

ENGLISH COMPREHENSION

Q1.Directions: In these questions the sentences have been given in **Active/ Passive Voice**. From the given alternatives choose the one which best expresses the given sentence in Passive/Active Voice.

You don't need to wind this watch.

- (a) This watch need not be wound.
- (b) This watch does not wind.
- (c) This watch need not be wounded.
- (d) This watch need not be winded up.

Q2.Directions: In these questions the sentences have been given in **Active/ Passive Voice**. From the given alternatives choose the one which best expresses the given sentence in Passive/Active Voice.

Paint the windows.

- (a) Windows should be painted.
- (b) Let the windows be painted.
- (c) Let be the windows painted.
- (d) Windows are let to be painted.

Q3.Directions : In these questions choose the word opposite in meaning to the word given in bold.

GIGANTIC

- (a) weak
- (b) fragile
- (c) slight
- (d) tiny

Q4.Directions : In these questions choose the word opposite in meaning to the word given in bold.

INFIRMITY

- (a) employment
- (b) indisposition
- (c) strength
- (d) weakness

Q5.Directions: In the following questions, 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.

She said to Rita, "Please help me with my homework."

- (a) She requested Rita to help her in her homework.
- (b) Rita requested her to help her with her homework.
- (c) She requested Rita to help her with her homework.
- (d) She requested Rita to help her homework.

Q6.Directions: In the following questions, 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.

"What did you see at the South Pole ?" Ashok asked Anil.

- (a) Ashok asked Anil if he saw anything at the South Pole
- (b) Ashok asked Anil what he had seen at the South Pole

- (c) Ashok asked Anil what did he see at the South Pole
- (d) Ashok asked Anil that he saw anything at the South Pole

Q7. Directions : In each questions read each sentence to find out the whether there is **any error** in it. The error if any will be in one part of the sentence. The number of that part is the answer. Ignore the errors of punctuations if any.

I must complement you (1)/ on your good manners (2) / and your impeccable behaviour (3)/ No error (4)

- (a) I must complement you
- (b) on your good manners
- (c) and your impeccable behaviour
- (d) No error

Q8. Directions : In each questions read each sentence to find out the whether there is **any error** in it. The error if any will be in one part of the sentence. The number of that part is the answer. Ignore the errors of punctuations if any.

After knowing truth (1)/ they took the right decision (2)/ in the matter (3)/ No error (4)

- (a) After knowing truth
- (b) they took the right decision
- (c) in the matter
- (d) No error

Q9. Will those of you who have objections to this proposal _____ put up your hands please ?

- (a) discussed
- (b) being discussed
- (c) having discussed
- (d) discussing

Q10. She politely asked him _____

- (a) to leave her hand
- (b) to give up her hand
- (c) to release her hand
- (d) to let her hand go

Q11.Directions: In the following questions, four alternatives are given for the **Idiom/Phrase** printed in bold in the sentence. Choose the alternative which best expresses the meaning of the Idiom/ Phrase.

to turn a deaf ear

- (a) to be hard of hearing
- (b) to be indifferent
- (c) to be attentive
- (d) to be obstinate

Q12.Directions: In the following questions, four alternatives are given for the **Idiom/Phrase** printed in bold in the sentence. Choose the alternative which best expresses the meaning of the Idiom/ Phrase.

Gopi works by fits and starts.

- (a) consistently
- (b) irregularly



- (c) In high spirits
(d) enthusiastically

Q13. Directions: Out of the four alternatives, choose the one which can be **substituted** for the given words/sentence.

A jocular person who is full of amusing anecdotes
(a) Wile
(b) Yokel
(c) Wag
(d) Aeon

Q14. Directions: Out of the four alternatives, choose the one which can be **substituted** for the given words/sentence.

One who tends to take a hopeful view of life
(a) Magnate
(b) Creator
(c) Pacifist
(d) Optimist

Q15. Directions : In these questions, the first and last sentence of the passage are numbered 1 and 6. The rest of the passage is split into four parts and named P,Q,R,S. These four parts are not given in proper order. Read the sentences and find out which of the four combinations is correct.

1. The very first battle they fought
P. and they had to fall back
Q. cross the border
R. was lost
S. letting the enemy
6. and enter the country
(a) RQSP
(b) RPSQ
(c) QRPS
(d) QPRS

Q16. Directions : In these questions, the first and last sentence of the passage are numbered 1 and 6. The rest of the passage is split into four parts and named P,Q,R,S. These four parts are not given in proper order. Read the sentences and find out which of the four combinations is correct.

1. Mary and Jo were amateur singers.
P. He called them for auditions the following week.
Q. So they approached a leading music company.
R. They wanted to try their luck at playback singing.
S. But the manager said that they would have to qualify an audition test.
6. Fortunately they qualified the test.
(a) RSPQ
(b) QPRS
(c) PRSQ
(d) RQSP

Q17. Directions: In the following questions, a sentence/ part of the sentence is printed in bold. Below are given

alternatives which may **improve the bold part**. Choose the correct alternative. In case no improvement is needed, your answer is No Improvement.

The students often play truant, didn't they ?

- (a) can they?
(b) is indeed ?
(c) don't they?
(d) No improvement

Q18. Directions: In the following questions, a sentence/ part of the sentence is printed in bold. Below are given alternatives which may **improve the bold part**. Choose the correct alternative. In case no improvement is needed, your answer is No Improvement.

He denied that he had not forged my signature.

- (a) would not forge
(b) had forged
(c) did not forge
(d) No Improvement

Q19. Directions: In the following questions out of the four alternatives, choose the one which best expresses, the meaning of the given word.

ALERT

- (a) hostile
(b) watchful
(c) brave
(d) quick

Q20. Directions: In the following questions out of the four alternatives, choose the one which best expresses, the meaning of the given word.

INFAMY

- (a) notoriety
(b) glory
(c) integrity
(d) familiarity

Q21. DIRECTIONS : YOU HAVE ONE BRIEF PASSAGE WITH LIVE QUESTIONS. READ THE PASSAGE CAREFULLY AND CHOOSE THE BEST ANSWER TO EACH QUESTION OUT OF THE FOUR ALTERNATIVES.

The Printing Press has made knowledge available to the vast multitude of people-Pray what kind of knowledge is it ? Is it of any permanent character ? Books have become common and when we say that books like the Sexton Blake series sell like hot cakes we have an index of the nature of knowledge which a typical person in a vast multitude seeks. Let me tell you of an incident that took place in America a few years ago. An American publisher printed a million copies of the works of Charles Dickens in the hope that he could easily sell them on the name of the author. But to his disappointment not even the widest publicity and advertisement could enable him to sell the books. Being sorely tired he hit on a plan. He tore off the cover pages **substituted** covers containing sensational love headings for the titles and again advertised the new



books. In a week all the books were sold out. We are not concerned here with the moral of the bookseller's action. What we have to note is that only books of a sensational type are really sought for by the ordinary folk who have a great aversion to serious study. So you will see that the grand argument that the Printing Press has made knowledge available even to the masses is certainly fallacious and quite misleading. To put it correctly it has created a taste for a low order of books.

Sexton Blake series are big sellers because they

- (a) disseminate knowledge.
- (b) are informative.
- (c) satisfy a typically serious reader.
- (d) are sensational.

Q22. The American publisher had chosen the works of Charles Dickens to

- (a) give wide publicity to Dickens works.
- (b) offer the readers what best he could.
- (c) counter the trash.
- (d) make money easily.

Q23. What is the main contention of the passage ?

- (a) To stress the popularity of the printing press.
- (b) To point out the disappointment of serious readers.
- (c) To shed light on the morale of the publishers.
- (d) To bring out the evil impacts of the printing press.

Q24. The author's contention makes us feel that he

- (a) is unilateral in his argument.
- (b) is balanced.
- (c) is a typical critic.
- (d) argues convincingly.

Q25. Who is Charles Dickens ?

- (a) A playwright.
- (b) An epic poet.
- (c) A short story writer.
- (d) A novelist.

NUMERICAL APTITUDE

Q26. The ratio of the number of boys and girls in a school is 3 :

2. If 20% of the boys and 25% of the girls are scholarship holders, then the percentage of the students, who do not get the scholarship is:

- (a) 78%
- (b) 75%
- (c) 60%
- (d) 55%

Q27. The compound interest on a certain sum of money for 2 year at 5% is Rs. 328, then the sum is :

- (a) Rs. 3000
- (b) Rs. 3600
- (c) Rs. 3200

(d) Rs. 3400

Q28. The top of two poles of height 24m and 36 m are connected by a wire. If the wire makes an angle of 60° with the horizontal, then the length of the wire is

- (a) 6m
- (b) $8\sqrt{3}$ m
- (c) 8 m
- (d) $6\sqrt{3}$ m

Q29. D and E are mid-points of sides AB and AC respectively of the ΔABC . A line drawn from A meets BC at H and DE at K. $AK : KH = ?$

- (a) 2 : 1
- (b) 1 : 1
- (c) 1 : 3
- (d) 1 : 2

Q30. What is the greatest number which will divide 110 and 128 leaving a remainder 2 in each case?

- (a) 8
- (b) 18
- (c) 28
- (d) 38

Q31. The minimum value of $\sin^2\theta + \cos^2\theta + \sec^2\theta + \operatorname{cosec}^2\theta + \tan^2\theta + \cot^2\theta$

- (a) 1
- (b) 3
- (c) 5
- (d) 7

Q32. If $\frac{\sin\theta}{x} = \frac{\cos\theta}{y}$, then $\sin\theta - \cos\theta$ is equal to :

- (a) $x - y$
- (b) $x + y$
- (c) $x - y / \sqrt{x^2 + y^2}$
- (d) $y - x / \sqrt{x^2 + y^2}$

Q33. The areas of a square and a rectangle are equal. The length of the rectangle is greater than the length of any of the square by 5 cm and the breadth is less by 3 cm. Find the perimeter of the rectangle.

- (a) 17 cm
- (b) 26 cm
- (c) 30 cm
- (d) 34 cm

Q34. The circular measure of an angle of an isosceles triangle is $5\pi/9$, Circular measure of one of the other angles must be :

- (a) $5\pi/18$
- (b) $5\pi/9$
- (c) $2\pi/9$
- (d) $4\pi/9$

Q35. Number of digits in the square root of 62478078 is:

- (a) 4



- (b) 5
(c) 6
(d) 3

Q36. What is the value of $\frac{2.75 \times 2.75 \times 2.75 - 2.25 \times 2.25 \times 2.25}{2.75 \times 2.75 + 2.75 \times 2.25 + 2.25 \times 2.25}$ is
(a) 2
(b) $\frac{3}{2}$
(c) 1
(d) $\frac{1}{2}$

Q37. If I walk at 5 km/hr, I miss a train by 7 minutes. If however, I walk at 6 km/hr, I reach the station 5 minutes before the departure of the train. The distance (in km) between my house and the station is
(a) 6
(b) 5
(c) 4
(d) 3

Q38. For what value(s) of k the expression $p + \frac{1}{4} + \sqrt{p} + k^2$ is perfect square?
(a) 0
(b) $\pm \frac{1}{4}$
(c) $\pm \frac{1}{8}$
(d) $\pm \frac{1}{2}$

Q39. In how many years will the simple interest on a sum of money equal to the principal at the rate of $\frac{50}{3}\%$ per annum
(a) 4 years
(b) 5 years
(c) 6 years
(d) 8 years

Q40. If A and B are in the ratio 4 : 5 and the difference of their squares is 81, what is the value of A P?
(a) 36
(b) 445
(c) 15
(d) 12

Q41. A can do a piece of work in 12 days while B alone can do it in 15 days. With the help of C they can finish it in 5 days. If they are paid 960 for the whole work. How much money A gets?
(a) Rs. 480
(b) Rs 240
(c) Rs. 320
(d) Rs. 400

Q42. A cloth merchant sold half of his cloth at 40% profit, half of remaining at 40% loss and the rest was sold at the cost price. In the total transaction his gain or loss will be
(a) 20% gain
(b) 25% loss
(c) 10% gain

- (d) 15% loss

Q43. The base of a right prism is an equilateral triangle. if the lateral surface area and volume is 120 cm^2 , $40\sqrt{3} \text{ cm}^3$ respectively then the side of base of the prism is
(a) 4 cm
(b) 5 cm
(c) 7 cm
(d) 40 cm

Q44. The unit digit in the product $(2467)^{153} \times (341)^{72}$ is
(a) 1
(b) 3
(c) 7
(d) 9

Q45. The marked price of an article is Rs. 500 . A shopkeeper gives a discount of 5% and still makes a profit of 25%. The cost price of the article is
(a) 384
(b) 380
(c) 300
(d) 376

Q46. The diameter of the base of a right circular cone is 4cm and its height $2\sqrt{3}$ cm. the slant height of the cone is:
(a) 5cm
(b) 4cm
(c) $2\sqrt{3}$ cm
(d) 3cm

Q47. The diameter of a 120 cm long roller is 84 cm . it takes 500 complete revolution of the roller to level a ground. The cost of travelling the ground at Rs. 1.50 sq.cm. is
(a) Rs. 5750
(b) Rs. 6000
(c) Rs. 3760
(d) Rs. 2376

Q48. If $\tan 2\theta + \tan 4\theta = 1$, then the value of $\tan 3\theta$ is :
(a) $\sqrt{3}$
(b) 10
(c) 1
(d) $1\sqrt{3}$

Q49. If $p = 999$, then the value of $\sqrt[3]{p(p^2 + 3p + 3)} + 1$ is :
(a) 1000
(b) 999
(c) 998
(d) 1002

Q50. In a factory, the production of cycles rose to 48,400 from 40,000 in 2years. The rate of growth per annum is?
(a) 10.5%
(b) 9%



- (c) 8%
(d) 10%

GENERAL INTELLIGENCE & REASONING

Q51.Direction: In each of the following questions, select the related word from the given alternatives.

Face : Expression :: Music : ?

- (a) Sound
(b) Ear
(c) Tune
(d) Instrument

Q52.Direction: In each of the following question, select the related number from the given alternatives.

371 : 150 :: 468 : ?

- (a) 247
(b) 357
(c) 246
(d) 345

Q53.Direction: In each of the following questions, select the related letter from the given alternatives.

BIMN : CKPR :: CURD : ?

- (a) DWUH
(b) WUHC
(c) UHDW
(d) HUVN

Q54. Pointing towards a boy Veena said, He is the son of only son of my grandfather. How is that boy related to Veena ?

- (a) Uncle
(b) Brother
(c) Cousin
(d) Nephew

Q55. Find the odd man out from the given responses ?

- (a) BS
(b) EV
(c) IZ
(d) DX

Q56. Find the odd man out from the given responses ?

- (a) Softball
(b) Baseball
(c) Cricket
(d) Basketball

Q57. Find the odd man out from the given responses ?

- (a) Sitar
(b) Violin
(c) Flute
(d) Veena

Q58. Find the odd man out from the given responses ?

- (a) Varanasi
(b) Agra

- (c) Haridwar
(d) Allahabad

Q59. Of the 5 towns A.B.C.D and E situated close to each other. A is to the west of B, C is to the south of A, E is to the north of B and D is to the east of E. Then C is in which **direction** with respect to D ?

- (a) South-West
(b) North-East
(c) North-West
(d) South-East

Q60. After going 80 m from his house towards east, a person turns left and goes 20 m, then turns right and moves 100 m, then turns left and goes 60 m, then turns right and goes 120m to reach the park. What is the distance between his house and the park?

- (a) 80 metre
(b) 120 metre
(c) 20 metre
(d) 100 metre

Q61.Directions: In each of the following questions a series is given with one term missing. Choose the correct alternative from the given ones that will complete the series

0, 4, 8, 24, 64, 176, ?

- (a) 180
(b) 480
(c) 280
(d) 300

Q62.Directions: In each of the following questions a series is given with one term missing. Choose the correct alternative from the given ones that will complete the series

24, 6, 18, 9, 36, 9, 24, ?

- (a) 24
(b) 12
(c) 8
(d) 6

Q63.Direction: In each of the following questions, a series is given, with one/two terms missing. Choose the correct alternatives from the given ones that will complete the series.

W-144, ?, S-100, Q-81, 0-64

- (a) V-121
(b) U-122
(c) V-128
(d) U-121

Q64. If UNIVERSITY is 1273948756, how can TRUSTY be written in that code ?

- (a) 542856
(b) 531856

- (c) 541856
(d) 541956

Q65. If MARS is written as ZNEF, how ARMS can be written in that code?

- (a) NEZF
(b) FENZ
(c) NFZE
(d) MEZF

Q66. If 'Stress' is coded as 'Rtress'. Then 'Pulse' will be coded as

- (a) Oulse
(b) Rulse
(c) Fulse
(d) Qulse

Q67.Direction: In the following questions a word is followed by four other words one of which cannot be formed by using the letter of the given word. Find this word.

- CONTINENT
(a) CONTENT
(b) INTENT
(c) CONVENT
(d) TENT

Q68.Direction: In the following questions a word is followed by four other words one of which cannot be formed by using the letter of the given word. Find this word.

- ADVERTISEMENT
(a) ADVISE
(b) DIVERSE
(c) TIME
(d) REVERSE

Q69. Direction: Which one set of letters when sequentially placed at the gaps in the given letters series shall complete .

- _aabab_ab_ab_ bba
(a) bbaa
(b) baaa
(c) abaa
(d) abba

Q70. Find the odd man out from the given responses ?
3,5,8,11,17,23

- (a) 8
(b) 11
(c) 17
(d) 23

Q71.Direction: In the following question, 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 alphabets as in the 2 matrices given below. The columns and rows

of Matrix-1 are numbered from 0 to 4 and that of Matrix-II from 5 to 9. A letter from these matrices can be represented first by its row and next by column number. For example, 'W' can be represented by 13, 20 etc. 'H' can be represented by 66, 78 etc. Identify the set for the word PENS.

MATRIX - I

	0	1	2	3	4
0	P	W	N	I	S
1	I	S	P	W	N
2	W	N	I	S	P
3	S	P	W	N	I
4	N	I	S	P	W

MATRIX - II

	5	6	7	8	9
5	A	E	R	O	H
6	O	H	A	E	R
7	E	R	O	H	A
8	H	A	E	R	O
9	R	O	H	A	E

- (a) 12, 67, 21, 30
(b) 43, 56, 13, 23
(c) 43, 56, 21, 42
(d) 31, 57, 21, 42

Q72.Directions: which of the answer figures is exactly the mirror image of the given figure?

Question Figure :

MOVE

Answer Figures :

- (1) **WOVE** (2) **EVOM**
(3) **EVOM** (4) **WOVE**

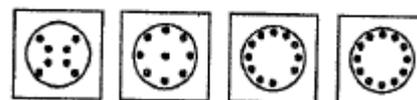
- (a) [1]
(b) [2]
(c) [3]
(d) [4]

Q73.Directions: A piece of paper is folded and cut as shown below. How will it appear when opened? Select your response from the answer figures.

Question Figures :



Answer Figures :

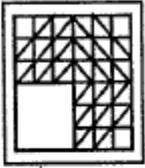


- (1) (2) (3) (4)

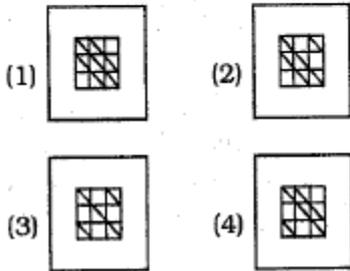
- (a) [1]
(b) [2]
(c) [3]
(d) [4]

Q74.Directions: Which answer figure will complete the question figure?

Question Figure :



Answer Figures :



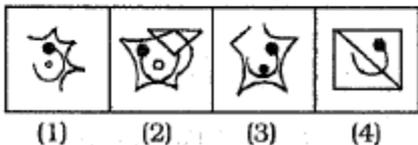
- (a)[1]
- (b)[2]
- (c)[3]
- (d)[4]

Q75.Directions: In which answer figure is the given figure embedded?

Question Figure :



Answer Figures :



- (a)[1]
- (b)[2]
- (c)[3]
- (d)[4]

GENERAL AWARENESS

Q76.Match the items in List 1 with those in List II and select the correct answer from the codes given below:

List I Ecosystem Services

(Type), A. Supporting B. Provisioning C. Regulating D. Cultural

List II Ecosystem service benefits

- 1.Recreational and aesthetic
- 2.Adjusting climate, floods, water quality
- 3.Soil formation, nutrient cycling
- 4.Food, clean water, timber

- (a)1234
- (b)2413
- (c)3421
- (d) 4321

Q77.Which extremist leader opined we will not achieve any success in our labours if we croak once a year like a frog?

- (a)B.G. Tilak
- (b)Lala Lajpat Rai
- (c) Bipin Chandra Pal
- (d)none of the above

Q78.Protesting against Simon Commission in a demonstration, Lala Lajpat Rai sustained fatal injuries. Where did the incident occur?

- (a) Amritsar
- (b)Delhi
- (c)Lahore
- (d)Jalandhar

Q79.The maximum strength of the Lok Sabha is

- (a)550
- (b)470
- (c)475
- (d)552

Q80.Where does the 90 deg. E. ridge lie?

- (a)Atlantic Ocean
- (b)Pacific Ocean
- (c)Mediterranean Sea
- (d)Indian Ocean

Q81. Who were the first kings to issue gold coins in India?

- (a)Mauryas
- (b)IndoGreeks
- (c)Guptas
- (d)Kushans

Q82.Which organ of the body never rest

- (a)Eyes
- (b)Pancreas
- (c) Liver
- (d)Heart

Q83.Which one of the following is a nonpoisonous of snake ?

- (a)Cobra
- (b) Dryophis
- (c)Elapes
- (d)Python

Q84.Niyamgiri hill is located in Kalahandi district ?

- (a)Orissa
- (b) West Bengal
- (c) Punjab
- (d) Kerala

Q85.The Visvesvaraya Iron & Steel Ltd. is located at

- (a)Bangalore
- (b) Bhadravati



- (c)Mangalore
(d) Mysore

Q86. Poorna Swaraj (Complete Independence) was declared to be the goal of the Indian National Congress in its Session of

- (a)Lucknow 1916
(b)Lahore 1929
(c)Tripura 1939
(d)Lahore 1940

Q87. Commercial banking system in India is

- (a)mixed banking
(b)unit banking
(c)branch banking
(d)None of these

Q88. The mass energy relation is the outcome of

- (a)quantum theory
(b)general theory of relativity
(c)field theory of energy
(d)special theory of relativity

Q89. The modulus of rigidity is the ratio of

- (a)longitudinal stress to longitudinal strain
(b)Volume stress to volume strain
(c)shearing stress to shearing strain
(d)tensile stress to tensile strain

Q90. Milk tastes sour when it is left in open for some time. This happens due to the formation of

- (a) Lactic acid
(b) Citric acid
(c) Acetic acid
(d) Carbonic acid

Q91. Aqua regia is a 1:3 mixture by volume of

- (a) conc. nitric acid and conc. hydrochloric acid
(b) conc. hydrochloric acid and conc. nitric acid
(c) conc. nitric acid and conc. sulphuric acid
(d) conc. sulphuric acid and conc. nitric acid

Q92. A translator for the assembly language to machine language is

- (a)assembler
(b) compiler
(c) interpreter
(d) linker

Q93. Cell or tissue death within a living body is called as

- (a)Neutrophilia
(b)Nephrosis
(c)Necrosis
(d)Neoplasia

Q94. In Scorpion poison is present in the

- (a)leg
(b)hand
(c)mouth

- (d)sting

Q95. Which of the following is a monoatomic gas?

- (a) Oxygen
(b) Neon
(c) Nitrogen
(d) Fluorine

Q96. The particle required to continue the chain process of Uranium fission is:

- (a) Electron
(b) Proton
(c) Neutron
(d) Positron

Q97. Water cannot be used to extinguish fire caused by electric current because

- (a) it may cause electrocution
(b)it may cause hydrolysis
(c)it may cause electrolysis
(d)it may spoil the wiring

Q98. Fish like mackerel, tuna, and salmon contain

- (a) omega-2 acids
(b) omega-3 acids
(c) omega-4 acids
(d) omega-5 acids

Q99. The biodiversity hotspot that comprises deserts, savannas, arid woodland and forests, and contains a large number of endemic plant species is

- (a) Cerrado
(b) Caucasus
(c) Tropical Andes
(d) Australia

Q100. Do or die was one of the most powerful slogans of India's freedom struggle. Who gave it?

- (a)Gandhi
(b)J.L. Nehru
(c)B.G. Tilak
(d)S.C. Bose

1a	2b	3d	4c	5c	6b
7a	8a	9b	10c	11b	12b
13c	14d	15b	16d	17c	18b
19b	20a	21d	22d	23c	24d
25d	26a	27c	28b	29b	30b
31d	32c	33d	34c	35a	36d
37a	38a	39c	40d	41d	42c
43a	44c	45b	46b	47d	48c
49a	50d	51a	52a	53a	54b
55d	56d	57c	58b	59a	60b
61d	62b	63d	64c	65a	66a
67c	68d	69a	70b	71c	72b



73d	74b	75b	76c	77a	78c
79d	80d	81b	82d	83d	84a
85b	86b	87c	88d	89c	90a
91a	92a	93c	94d	95b	96c
97a	98b	99b	100a		