

Signature and Name of Invigilator

PAPER - I

1. (Signature) _____

(Name) _____

2. (Signature) _____

(Name) _____

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Test Booklet Series

P

Time : 1¼ hours]

OMR Sheet No. :
(To be filled by the Candidate)

Roll No.

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(In figures as per admission card)

Roll No. _____
(In words)

[Maximum Marks : 100

Number of Pages in this Booklet : 24

Number of Questions in this Booklet : 60

Instructions for the Candidates

- Write your roll number in the space provided on the top of this page.
- This paper consists of sixty (60) multiple-choice type of questions, out of which the candidate would be required to answer any fifty (50) questions. In the event of candidate attempting more than fifty questions, the first fifty questions attempted by the Candidate would be evaluated.
- At the commencement of examination, the question booklet will be given to you. In the first 5 minutes, you are requested to open the booklet and compulsorily examine it as below :
 - To have access to the Question Booklet, tear off the paper seal/polythene bag on the booklet. Do not accept a booklet without sticker-seal/without polythene bag and do not accept an open booklet.
 - Tally the number of pages and number of questions in the booklet with the information printed on the cover page. Faulty booklets due to pages/questions missing or duplicate or not in serial order or any other discrepancy should be got replaced immediately by a correct booklet from the invigilator within the period of 5 minutes. Afterwards, neither the Question Booklet will be replaced nor any extra time will be given.**
 - After this verification is over, the Test Booklet Number should be entered on the OMR Sheet and the OMR Sheet Number should be entered on this Test Booklet.
 - The Series of this booklet is **P**, make sure that the Series printed on OMR Sheet is same as that on this booklet. In case of discrepancy in Series, the candidate should immediately report the matter to the Invigilator for replacement of the Test Booklet/OMR Sheet.
- Each item has four alternative responses marked (1), (2), (3) and (4). You have to darken the circle as indicated below on the correct response against each item.
Example : ① ② ● ④ where (3) is the correct response.
- Your responses to the items are to be indicated in the **OMR Sheet given inside the Booklet only**. If you mark your response at any place other than in the circle in the OMR Sheet, it will not be evaluated.
- Read instructions given inside carefully.
- Rough Work is to be done in the end of this booklet.
- If you write your Name, Roll Number, Phone Number or put any mark on any part of the OMR Sheet, except for the space allotted for the relevant entries, which may disclose your identity, or use abusive language or employ any other unfair means, such as change of response by scratching or using white fluid, you will render yourself liable to disqualification.
- You have to return the original OMR Sheet to the invigilators at the end of the examination compulsorily and must not carry it with you outside the Examination Hall. You are however, allowed to carry original question booklet and duplicate copy of OMR Sheet on conclusion of examination.
- Use only Blue/Black Ball point pen.
- Use of any calculator or log table etc., is prohibited.
- There are no negative marks for incorrect answers.
- In case of any discrepancy in the English and Hindi versions, English version will be taken as final.

परीक्षार्थियों के लिए निर्देश

- इस पृष्ठ के ऊपर नियत स्थान पर अपना रोल नम्बर लिखिए।
- इस प्रश्न-पत्र में साठ (60) बहुविकल्पीय प्रश्न हैं, जिनमें से उम्मीदवार को किसी भी पचास (50) प्रश्न का उत्तर देना होगा। उम्मीदवार द्वारा पचास से अधिक प्रश्नों का उत्तर देने पर उम्मीदवार द्वारा दिये गये प्रथम पचास प्रश्नों का मूल्यांकन किया जायेगा।
- परीक्षा प्रारम्भ होने पर, प्रश्न-पुस्तिका आपको दे दी जायेगी। पहले पाँच मिनट आपको प्रश्न-पुस्तिका खोलने तथा उसकी निम्नलिखित जाँच के लिए दिये जायेंगे, जिसकी जाँच आपको अवश्य करनी है :
 - प्रश्न-पुस्तिका खोलने के लिए पुस्तिका पर लगी कागज की सील/पोलिथीन बैग को फाड़ लें। खुली हुई या बिना स्टीकर-सील/बिना पोलिथीन बैग की पुस्तिका स्वीकार न करें।
 - कवर पृष्ठ पर छपे निर्देशानुसार प्रश्न-पुस्तिका के पृष्ठ तथा प्रश्नों की संख्या को अच्छी तरह चैक कर लें कि ये पूरे हैं। दोषपूर्ण पुस्तिका जिनमें पृष्ठ/प्रश्न कम हों या दुबारा आ गये हों या सीरियल में न हों अर्थात् किसी भी प्रकार की त्रुटिपूर्ण पुस्तिका स्वीकार न करें तथा उसी समय उसे लौटाकर उसके स्थान पर दूसरी सही प्रश्न-पुस्तिका ले लें। इसके लिए आपको पाँच मिनट दिये जायेंगे। उसके बाद न तो आपकी प्रश्न-पुस्तिका वापस ली जायेगी और न ही आपको अतिरिक्त समय दिया जायेगा।
 - इस जाँच के बाद प्रश्न-पुस्तिका का नंबर OMR पत्रक पर अंकित करें और OMR पत्रक का नंबर इस प्रश्न-पुस्तिका पर अंकित कर दें।
 - इस प्रश्न-पुस्तिका का सीरीज **P** है। यह सुनिश्चित कर लें कि इस प्रश्न-पुस्तिका का सीरीज, OMR पत्रक के सीरीज से मिलता है। अगर सीरीज भिन्न हो तो परीक्षार्थी दूसरी समान सीरीज वाली प्रश्न-पुस्तिका/OMR पत्रक बदलने के लिए निरीक्षक को तुरंत सूचित करें।
- प्रत्येक प्रश्न के लिए चार उत्तर विकल्प (1), (2), (3) तथा (4) दिये गये हैं। आपको सही उत्तर के वृत्त को पेन से भरकर काला करना है जैसा कि नीचे दिखाया गया है।
उदाहरण : ① ② ● ④ जबकि (3) सही उत्तर है।
- प्रश्नों के उत्तर केवल प्रश्न पुस्तिका के अन्दर दिये गये OMR पत्रक पर ही अंकित करने हैं। यदि आप OMR पत्रक पर दिये गये वृत्त के अलावा किसी अन्य स्थान पर उत्तर चिन्हांकित करते हैं, तो उसका मूल्यांकन नहीं होगा।
- अन्दर दिये गये निर्देशों को ध्यानपूर्वक पढ़ें।
- कच्चा काम (Rough Work) इस पुस्तिका के अन्तिम पृष्ठ पर करें।
- यदि आप OMR पत्रक पर नियत स्थान के अलावा अपना नाम, रोल नम्बर, फोन नम्बर या कोई भी ऐसा चिह्न जिससे आपकी पहचान हो सके, अंकित करते हैं अथवा अभद्र भाषा का प्रयोग करते हैं, या कोई अन्य अनुचित साधन का प्रयोग करते हैं, जैसे कि अंकित किये गये उत्तर को मिटाना या सफेद स्याही से बदलना तो परीक्षा के लिये अयोग्य घोषित किये जा सकते हैं।
- आपको परीक्षा समाप्त होने पर मूल OMR पत्रक निरीक्षक महोदय को लौटाना आवश्यक है और परीक्षा समाप्ति के बाद उसे अपने साथ परीक्षा भवन से बाहर न लेकर जायें। हालांकि आप परीक्षा समाप्ति पर मूल प्रश्न-पुस्तिका तथा OMR पत्रक की डुप्लीकेट प्रति अपने साथ ले जा सकते हैं।
- केवल नीले/काले बाल प्वाइंट पेन का ही इस्तेमाल करें।
- किसी भी प्रकार का संगणक (कैलकुलेटर) या लाग टेबल आदि का प्रयोग वर्जित है।
- गलत उत्तरों के लिए कोई नकारात्मक अंक नहीं हैं।
- यदि अंग्रेजी या हिंदी विवरण में कोई विसंगति हो, तो अंग्रेजी विवरण अंतिम माना जाएगा।



PAPER - I

Note : This paper consists of **Sixty (60)** multiple-choice type of questions, out of which the candidate would be required to answer **any Fifty (50)** questions. In the event of candidate attempting more than **Fifty (50)** questions, the **first Fifty (50)** questions attempted by the Candidate would be evaluated. **50 Q x 2 M = 100 Marks**

1. Greater the handicap of the students coming to the educational institutions, greater the demand on the :

- (1) Family (2) Society (3) Teacher (4) State

2. What are the characteristics of Continuous and Comprehensive Evaluation ?

- (a) It increases the workload on students by taking multiple tests.
(b) It replaces marks with grades.
(c) It evaluates every aspect of the student.
(d) It helps in reducing examination phobia.

Select the **correct** answer from the codes given below :

- (1) (a), (b), (c) and (d) (2) (b) and (d)
(3) (a), (b) and (c) (4) (b), (c) and (d)

3. Which of the following attributes denote great strengths of a teacher ?

- (a) Full-time active involvement in the institutional management
(b) Setting examples
(c) Willingness to put assumptions to the test
(d) Acknowledging mistakes

Select the **correct** answer from the codes given below :

- (1) (a), (b) and (d) (2) (b), (c) and (d)
(3) (a), (c) and (d) (4) (a), (b), (c) and (d)

4. Which one of the following statements is **correct** in the context of multiple - choice type questions ?

- (1) They are more objective than true-false type questions.
(2) They are less objective than essay type questions.
(3) They are more subjective than short-answer type questions.
(4) They are more subjective than true-false type questions.



5. As Chairman of an independent commission on education, Jacques Delors report to UNESCO was titled :

- (1) International Commission on Education Report
- (2) Millennium Development Report
- (3) Learning : The Treasure Within
- (4) World Declaration on Education for All

6. What are required for good teaching ?

- (a) Diagnosis
- (b) Remedy
- (c) Direction
- (d) Feedback

Select the **correct** answer from the codes given below :

- | | |
|---------------------------|-----------------|
| (1) (a), (b), (c) and (d) | (2) (a) and (b) |
| (3) (b), (c) and (d) | (4) (c) and (d) |

7. Which of the following statements is **not** true in the context of participatory research ?

- (1) It recognizes knowledge as power.
- (2) It emphasises on people as experts.
- (3) It is a collective process of enquiry.
- (4) Its sole purpose is production of knowledge.

8. Which of the following statements is **true** in the context of the testing of a hypothesis ?

- (1) It is only the alternative hypothesis, that can be tested.
- (2) It is only the null hypothesis, that can be tested.
- (3) Both, the alternative and the null hypotheses can be tested.
- (4) Both, the alternative and the null hypotheses cannot be tested.



9. Which of the following are the basic rules of APA style of referencing format ?

- (a) Italicize titles of shorter works such as journal articles or essays
- (b) Invert authors' names (last name first)
- (c) Italicize titles of longer works such as books and journals
- (d) Alphabetically index reference list

Select the **correct** answer from the codes given below :

- (1) (a) and (b)
- (2) (b), (c) and (d)
- (3) (c) and (d)
- (4) (a), (b), (c) and (d)

10. Which of the following are the characteristics of a seminar ?

- (a) It is a form of academic instruction.
- (b) It involves questioning, discussion and debates.
- (c) It involves large groups of individuals.
- (d) It needs involvement of skilled persons.

Select the **correct** answer from the codes given below :

- (1) (b) and (c)
- (2) (b) and (d)
- (3) (b), (c) and (d)
- (4) (a), (b) and (d)

11. A researcher is interested in studying the prospects of a particular political party in an urban area. What tool should he prefer for the study ?

- (1) Rating scale
- (2) Interview
- (3) Questionnaire
- (4) Schedule

12. Ethical norms in research do **not** involve guidelines for :

- (1) Thesis format
- (2) Copyright
- (3) Patenting policy
- (4) Data sharing policies



Read the following passage carefully and answer question numbers 13 to 17.

I did that thing recently where you have to sign a big card - which is a horror unto itself, especially as the keeper of the Big Card was leaning over me at the time. Suddenly I was on the spot, a rabbit in the headlights, torn between doing a fun message or some sort of in-joke or a drawing. Instead overwhelmed by the myriad options available to me, I decided to just write : "Good luck, best, Joel".

It was then that I realised, to my horror, that I had forgotten how to write. My entire existence is "tap letters into computer". My shopping lists are hidden in the notes function of my phone. If I need to remember something I send an e-mail to myself. A pen is something I chew when I'm struggling to think. Paper is something I pile beneath my laptop to make it a more comfortable height for me to type on.

A poll of 1,000 teens by the stationers, Bic found that one in 10 don't own a pen, a third have never written a letter, and half of 13 to 19 years - old have never been forced to sit down and write a thank you letter. More than 80% have never written a love letter, 56% don't have letter paper at home. And a quarter have never known the unique torture of writing a birthday card. The most a teen ever has to use a pen is on an exam paper.

Bic, have you heard of mobile phones ? Have you heard of e-mail, facebook and snap chatting ? This is the future. Pens are dead. Paper is dead. Handwriting is a relic.

"Handwriting is one of the most creative outlets we have and should be given the same importance as other art forms such as sketching, painting or photography."

Answer the following questions :

13. When confronted with signing a big card, the author felt like "a rabbit in the headlight". What does this phrase mean ?

- | | |
|--------------------------|-------------------------|
| (1) A state of confusion | (2) A state of pleasure |
| (3) A state of anxiety | (4) A state of pain |

14. According to the author, which one is **not** the most creative outlet of pursuit ?

- | | |
|-----------------|-----------------|
| (1) Handwriting | (2) Photography |
| (3) Sketching | (4) Reading |

15. The entire existence of the author revolves round :

- (a) Computer
- (b) Mobile phone
- (c) Typewriter

Identify the **correct** answer from the codes given below :

- | | |
|----------------------|----------------------|
| (1) (b) only | (2) (a) and (b) only |
| (3) (a), (b) and (c) | (4) (b) and (c) only |



16. How many teens, as per the Bic survey, do **not** own a pen ?
(1) 800 (2) 560 (3) 500 (4) 100
17. What is the main concern of the author ?
(1) That the teens use social networks for communication.
(2) That the teens use mobile phones.
(3) That the teens use computer.
(4) That the teens have forgotten the art of handwriting.
18. The main objectives of student evaluation of teachers are :
(a) To gather information about student weaknesses.
(b) To make teachers take teaching seriously.
(c) To help teachers adopt innovative methods of teaching.
(d) To identify the areas of further improvement in teacher traits.
Identify the **correct** answer from the codes given below :
(1) (a) and (b) only (2) (b), (c) and (d) only
(3) (a), (b) and (c) only (4) (a) only
19. Using the central point of the classroom communication as the beginning of a dynamic pattern of ideas is referred to as :
(1) Systemisation (2) Problem - orientation
(3) Idea protocol (4) Mind mapping
20. Aspects of the voice, other than the speech are known as :
(1) Physical language (2) Personal language
(3) Para language (4) Delivery language
21. Every type of communication is affected by its :
(1) Reception (2) Transmission (3) Non-regulation (4) Context
22. Attitudes, actions and appearances in the context of classroom communication are considered as :
(1) Verbal (2) Non-verbal (3) Impersonal (4) Irrational



23. Most often, the teacher - student communication is :
 (1) Spurious (2) Critical (3) Utilitarian (4) Confrontational
24. In a classroom, a communicator's trust level is determined by :
 (1) the use of hyperbole (2) the change of voice level
 (3) the use of abstract concepts (4) eye contact
25. The next term in the series
 2, 5, 10, 17, 26, 37, ___?___ is :
 (1) 50 (2) 57 (3) 62 (4) 72
26. A group of 210 students appeared in some test. The mean of $\frac{1}{3}$ rd of students is found to be 60. The mean of the remaining students is found to be 78. The mean of the whole group will be :
 (1) 80 (2) 76 (3) 74 (4) 72
27. Anil after travelling 6 km towards East from his house realized that he has travelled in a wrong direction. He turned and travelled 12 km towards West, turned right and travelled 8 km to reach his office. The straight distance of the office from his house is :
 (1) 20 km (2) 14 km (3) 12 km (4) 10 km
28. The next term in the series :
 B2E, D5H, F12K, H27N, ___?___ is :
 (1) J56I (2) I62Q (3) Q62J (4) J58Q
29. A party was held in which a grandmother, father, mother, four sons, their wives and one son and two daughters to each of the sons were present. The number of females present in the party is :
 (1) 12 (2) 14 (3) 18 (4) 24
30. P and Q are brothers. R and S are sisters. The son of P is brother of S. Q is related to R as :
 (1) Son (2) Brother (3) Uncle (4) Father
31. Consider the argument given below :
 'Pre - employment testing of teachers is quite fair because doctors, architects and engineers who are now employed had to face such a testing.'
 What type of argument it is ?
 (1) Deductive (2) Analogical (3) Psychological (4) Biological



32. Among the following propositions two are related in such a way that they can both be true although they cannot both be false. Which are those propositions ? Select the **correct** code.

Propositions :

- (a) Some priests are cunning.
- (b) No priest is cunning.
- (c) All priests are cunning.
- (d) Some priests are not cunning.

Codes :

- (1) (a) and (b) (2) (c) and (d) (3) (a) and (c) (4) (a) and (d)

33. A Cluster of propositions with a structure that exhibits some inference is called :

- (1) An inference (2) An argument
- (3) An explanation (4) A valid argument

34. Consider the following **assertion (A)** and **reason (R)** and select the **correct** code given below :

(A) : No man is perfect.

(R) : Some men are not perfect.

- (1) Both **(A)** and **(R)** are true but **(R)** does not provide sufficient reason for **(A)**.
- (2) Both **(A)** and **(R)** are true and **(R)** provides sufficient reason for **(A)**.
- (3) **(A)** is true but **(R)** is false.
- (4) **(A)** is false but **(R)** is true.

35. A definition that has a meaning that is deliberately assigned to some symbol is called :

- (1) Lexical (2) Precising (3) Stipulative (4) Persuasive

36. If the proposition 'No men are honest' is taken to be false which of the following proposition/ propositions can be claimed certainly to be true ?

Propositions :

- (1) All men are honest (2) Some men are honest
- (3) Some men are not honest (4) No honest person is man



Given below in the table is the decadal data of Population and Electrical Power Production of a country.

Year	Population (million)	Electrical Power Production (GW)*
1951	20	10
1961	21	20
1971	24	25
1981	27	40
1991	30	50
2001	32	80
2011	35	100
		* 1 GW = 1000 million watt

Based on the above table, answer the questions from Sl. No. 37 to 42.

37. Which decade registered the maximum growth rate (%) of population ?
 (1) 1961-71 (2) 1971-81 (3) 1991-2001 (4) 2001-2011
38. Average decadal growth rate (%) of population is :
 (1) ~ 12.21% (2) ~ 9.82% (3) ~ 6.73% (4) ~ 5%
39. Based on the average decadal growth rate, what will be the population in the year 2021 ?
 (1) 40.34 million (2) 38.49 million (3) 37.28 million (4) 36.62 million
40. In the year 1951, what was the power availability per person ?
 (1) 100 W (2) 200 W (3) 400 W (4) 500 W
41. In which decade, the average power availability per person was maximum ?
 (1) 1981-1991 (2) 1991-2001 (3) 2001-2011 (4) 1971-1981
42. By what percentage (%) the power production increased from 1951 to 2011 ?
 (1) 100% (2) 300% (3) 600% (4) 900%
43. NMEICT stands for :
 (1) National Mission on Education through ICT
 (2) National Mission on E-governance through ICT
 (3) National Mission on E-commerce through ICT
 (4) National Mission on E-learning through ICT



44. Which of the following is an instant messaging application ?

- (a) WhatsApp
- (b) Google Talk
- (c) Viber

Select the **correct** answer from the codes given below :

- (1) (a) and (b) only
- (2) (b) and (c) only
- (3) (a) only
- (4) (a), (b) and (c)

45. In a Computer a byte generally consists of :

- (1) 4 bits
- (2) 8 bits
- (3) 16 bits
- (4) 10 bits

46. Which of the following is **not** an input device ?

- (1) Microphone
- (2) Keyboard
- (3) Joystick
- (4) Monitor

47. Which of the following is an open source software ?

- (1) MS Word
- (2) Windows
- (3) Mozilla Firefox
- (4) Acrobat Reader

48. Which of the following enables us to send the same letter to different persons in MS Word ?

- (1) Mail join
- (2) Mail copy
- (3) Mail insert
- (4) Mail merge

49. Inside rural homes, the source/sources of Nitrogen Oxide Pollution may be :

- (a) Unvented gas stoves
- (b) Wood stoves
- (c) Kerosene heaters

Choose the **correct** code :

- (1) (a) and (b) only
- (2) (b) and (c) only
- (3) (b) only
- (4) (a), (b) and (c)

50. Which of the following pollutants can cause cancer in humans ?

- (1) Pesticides
- (2) Mercury
- (3) Lead
- (4) Ozone



51. **Assertion (A) :** People population control measures do not necessarily help in checking environmental degradation.

Reason (R) : The relationship between population growth and environmental degradation is rather complex.

Choose the **correct** answer from the following :

- (1) Both **(A)** and **(R)** are true and **(R)** is the correct explanation of **(A)**.
- (2) Both **(A)** and **(R)** are true but **(R)** is not the correct explanation of **(A)**.
- (3) **(A)** is true but **(R)** is false.
- (4) **(A)** is false but **(R)** is true.

52. Which of the following phenomena is **not** a natural hazard ?

- (1) Wildfire
- (2) Lightning
- (3) Landslide
- (4) Chemical contamination

53. As part of National Climate Change Policy, Indian government is planning to raise the installed capacity of renewable energy by the year 2030 to :

- (1) 175 GW
- (2) 200 GW
- (3) 250 GW
- (4) 350 GW

54. At present, in terms of per capita energy consumption (kWh/year), identify the **correct** sequence.

- (1) Brazil > Russia > China > India
- (2) Russia > China > India > Brazil
- (3) Russia > China > Brazil > India
- (4) China > Russia > Brazil > India

55. Which of the following are the objectives of Rashtriya Uchchar Shiksha Abhiyan (RUSA) ?

- (a) To improve the overall quality of state institutions.
- (b) To ensure adequate availability of quality faculty.
- (c) To create new institutions through upgradation of existing autonomous colleges.
- (d) To downgrade universities with poor infrastructure into autonomous colleges.

Select the **correct** answer from the codes given below :

- (1) (a), (b), (c) and (d)
- (2) (a), (b) and (c)
- (3) (a), (c) and (d)
- (4) (a), (b) and (d)



56. The grounds on which discrimination in admission to educational institutions is constitutionally prohibited are :

- (a) Religion
- (b) Sex
- (c) Place of birth
- (d) Nationality

Select the **correct** answer from the codes given below :

- (1) (b), (c) and (d)
- (2) (a), (b) and (c)
- (3) (a), (b) and (d)
- (4) (a), (b), (c) and (d)

57. Which of the following statements are **correct** about Lok Sabha ?

- (a) The Constitution puts a limit on the size of the Lok Sabha.
- (b) The size and shape of the Parliamentary Constituencies is determined by the Election Commission.
- (c) First - past - the Post electoral system is followed.
- (d) The Speaker of Lok Sabha does not have a casting vote in case of an equality of votes.

Select the **correct** answer from the codes given below :

- (1) (a) and (c)
- (2) (a), (b) and (c)
- (3) (a), (c) and (d)
- (4) (a), (b), (c) and (d)

58. Public Order as an item in the Constitution figures in :

- (1) the Union List
- (2) the State List
- (3) the Concurrent List
- (4) the Residuary Powers

59. The term of office of the Advocate General of a State is :

- (1) 4 years
- (2) 5 years
- (3) 6 years or 65 years of age whichever is earlier
- (4) not fixed

60. Which among the following States has the highest number of seats in the Lok Sabha ?

- (1) Maharashtra
- (2) Rajasthan
- (3) Tamil Nadu
- (4) West Bengal

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QNO	ANS	QNO	ANS	QNO	ANS	QNO	ANS
1	3	26	4	51	1	76	
2	4	27	4	52	4	77	
3	2	28	4	53	4	78	
4	1	29	2	54	3	79	
5	3	30	3	55	2	80	
6	1	31	2	56	2	81	
7	4	32	4	57	1	82	
8	2	33	2	58	2	83	
9	2	34	1	59	4	84	
10	4	35	3	60	1	85	
11	3	36	2	61		86	
12	1	37	1	62		87	
13	1	38	2	63		88	
14	4	39	2	64		89	
15	2	40	4	65		90	
16	4	41	3	66		91	
17	4	42	4	67		92	
18	2	43	1	68		93	
19	4	44	4	69		94	
20	3	45	2	70		95	
21	4	46	4	71		96	
22	2	47	3	72		97	
23	3	48	4	73		98	
24	4	49	4	74		99	
25	1	50	1	75		100	

9=No option is correct or the question is wrong, A=1&2,B=1&3,
C=1&4,D=1,2&3,E=1,2&4,F=1,3&4,G=1,2,3&4,H=2&3,I=2&4,J=2,3&4,K=3&4