

CONSTRUCTION AND STANDARDIZATION OF AN ACHIEVEMENT TEST OF GENERAL SCIENCE BASED ON NCERT SYLLABUS FOR CLASS IX.

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Abstract

Achievement test is of very important assessment tool to evaluate the student's current level of knowledge and skill acquired from classroom instruction. This test is designed to evaluate the student's level of achievement in a particular subject for a particular class prescribed under the board or the university. In other words, to assess how much the pupils have achieved the educational objectives in teaching learning process at the end of the course and if achieved then to what extent, it has been achieved. According to Webster Dictionary of Education (1989) academic achievement is the performance of the students in courses of their formal study in the school or institution of learning. Achievement tests are proved to be very helpful in various ways to the people who are involved in the field of education such as the teachers, the administrators, the planners, to the parents as well as for the students. The teacher very carefully develops and conduct achievement test in the class which enable the teacher to get an overall idea of the progress or the level of achievement of his students in the subject area. The teacher can determine the pupil's strength and weakness in the subject area. So, based on this the teacher can take necessary remedial instructional strategies for the betterment of the pupil's progress. In the same time, it also provides feedback for the teaching efficiency of the teacher.



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INTRODUCTION: In order to maintain uniform standard of education the Government has formulated a policy to implement NCERT syllabus common to all School Boards throughout the country and accordingly the State Board of Secondary Education, Assam (SEBA) follow NCERT syllabus and to evaluate students' achievement in terms of the policy formulated by the Board. Till now, no any standardized achievement test has been conducted for the secondary school students of Assam. Therefore, the investigators felt to construct and standardize an achievement test in the subject General Science which will definitely help in educational research.

OBJECTIVE OF THE STUDY: In this study, an attempt has been made to construct and standardize an achievement test for the subject General Science based on NCERT syllabus for class IX.

1.07 OPERATIONAL DEFINITION OF THE TERMS USED IN THE STUDY

Achievement test: The term achievement test as used in this study means an objective multiple choice questions which will be developed by the investigator.

Concept of General Science: The word General Science means the integrated knowledge of Physics, Chemistry, Botany and Zoology related to day to day life of students.

Secondary school: in this study secondary school means all the students having classes from IX to XI. However, in this study the investigator restricted to construct the achievement test in the subject General Science for class IX students.

THE TEST BOOKLET

AN ACHIEVEMENT TEST ON GENERAL SCIENCE

(FOR CLASS IX)

INSTRUCTIONS

1. This test has 150 questions. Each question carries one mark.
2. Each question has four alternatives—A, B, C, and D. Out of these only one option is correct.
3. You have to write the correct answer in the space provided in the answer sheet.
4. Time for the total test is 90 minutes.
5. Do not write anything on this booklet. Do all your rough work on the blank sheet provided along with the answer sheet.

Instructions on the Achievement Test Booklet.

No. of questions: 150

Time: 90 minutes

Please fill the following details immediately

Name:

Class :

School:

Choose the correct response:

1. Intermolecular force of attraction is maximum in :
 - a. Liquid
 - b. Solid
 - c. Gases
 - d. Plasma particles

2. Which of the following are Indian cattle:

- i. Bos indicus
 - ii. Bos bubalis
 - iii. Bos domestica
 - iv. Bos vulgaris
- (a) (i) and (ii) (b) (i) and (iii)
(c) (iii) and (iv) (d) (i) and (iv)

3. The SI unit of force is:

- a. Newton
- b. Newton per second
- c. Newton meter
- d. Newton per square meter

4. Which of the following is correct about 'note' as a sound:

- i. It is of single frequency
 - ii. Mixture of several frequencies
 - iii. Unpleasant to listen
 - iv. Pleasant to listen
- a. i & iii b. ii & iv
c. iii & ii d. iii & iv

5. Choose the wrong statement:

- a. Disease lasts for only short periods of time are called chronic diseases.
- b. Disease lasts for long period are called chronic diseases.
- c. Diseases caused immediately by microbes are called infectious diseases.
- d. Diseases that are not caused by infectious agents are called non- infectious diseases.

6. The two forms of oxygen found in the atmosphere:

- a. Water and ozone
- b. Water and oxygen
- c. Ozone and oxygen
- d. Water and carbon dioxide

7. Which of the following is not correctly matched?

- a. Gold ---Au
- b. Silver ----Ag
- c. Aluminium----Al
- d. Argon-----A

8. Father of nuclear Physics is:

- a. Thompson
- b. E. Rutherford
- c. Dalton
- d. Neil Bohr

9. If the atomic number of Oxygen is 8 then how many protons and electrons does O^{2-} have?

- a. No. of protons: 8; no. of electrons: 10
- b. No. of protons: 10; no. of electrons: 8
- c. No. of protons: 2; no. of electrons: 8
- d. No. of protons: 2; no. of electrons: 2

10. Sound cannot travel in:

- a. In vacuum
- b. Air
- c. Water
- d. Aluminium

11. The concentration of a solution is :

- a. Concentration of solution= amount of solute/amount of solution
- b. Concentration of solution= amount of solvent/ amount of solute
- c. Concentration of solution= amount of solvent
- d. Concentration of solution=amount of solute

12. The muscular tissue function continuously throughout the life without fatigue under normal condition is:

- a. Skeletal muscle
- b. Smooth muscles
- c. Cardiac muscle
- d. Involuntary muscle

13. Vacuole is larger in which of the given cell:

- a. Animal cell
- b. Golgi body
- c. Plant cell
- d. Lysosome

14. A wooden table should be called a solid. Find out the odd characteristic:

- a. It is highly rigid

- b. It has definite shape and size and volume
 - c. It is not compressible
 - d. It has least density
15. Which of the following contain macronutrients only?
- a. Nitrogen, Copper, Calcium
 - b. Nitrogen, Phosphorus, Potassium
 - c. Calcium, magnesium, zinc
 - d. Iron, zinc, copper
16. Choose the appropriate word to fill up the following statement:
“To every action, there is an ----- and -----reaction.”
- a. Equal , Opposite
 - b. Opposite, Equal
 - c. Equal , Unequal
 - d. Opposite , Unequal
17. The amphibians of plant kingdom:
- a. Pteridophytes
 - b. Bryophytes
 - c. Thallophytes
 - d. Saprophytes
18. The number value 6.022×10^{23} called as:
- a. Avogadro's Number
 - b. Atomic number
 - c. Mass number
 - d. Dalton number
19. Who discovered the 'Neutron':
- a. Thomson
 - b. James Chadwick
 - c. Rutherford
 - d. Bohr
20. Which of the following is a unit of acceleration?
- a. m/s^2
 - b. km/s^2

- c. km/s
 - d. m/s
21. The commercial unit of energy is:
- a. Watt-second
 - b. Kilowatt-hour
 - c. Watt- hour
 - d. Kilowatt- minute
22. The audible range of sound for human being is:
- a. 20 Hz to 20 KHz
 - b. 10 Hz to 20,000 Hz
 - c. 10 Hz to 1000Hz
 - d. 20 Hz to 2000 Hz
23. Which one of the following can be called a suspension:
- a. Milk of magnesia
 - b. Milk
 - c. Sugar solution
 - d. Chalk powder
24. Flexibility in plants is due to :
- a. Parenchyma
 - b. Sclerenchyma
 - c. Collenchyma
 - d. Chlorenchyma
25. Site of protein Synthesis in plant is:
- a. Mitochondria
 - b. Centrosome
 - c. Lysosome
 - d. Ribosome
26. A solid changes into gaseous state by the process of:
- a. Sublimation
 - b. Condensation
 - c. Solidification or freezing
 - d. Melting

27. The quality of honey depends on the factors:
- Pasturage for nectar and pollen
 - Kinds of flowers available
 - Only if stay in the beehive for longer period
 - 'a' & 'b' are the factors
28. While flying, the birds push the air in the direction of:
- Sideways
 - Forward
 - Backward
 - Downward
29. If the distance between two objects is doubled, the gravitational force between them:
- Remains the same
 - Gets double
 - Gets halves
 - Gets one-fourth
30. Swine flu is caused by :
- Virus
 - Bacteria
 - Mosquito
 - Fungi
31. In nitrogen cycle which bacteria are responsible for nitrogen fixation:
- Nostoc
 - Rhizobium
 - Spirogyra
 - Chlorella
32. Which one of the following pair is an Isotope?
- i) $^{40}_{18}\text{A}$, $^{40}_{20}\text{B}$ ii) $^{79}_{35}\text{X}$, $^{80}_{35}\text{Y}$
- (i) Isotopes
 - (ii) isotopes
 - Both (i) & (ii) pairs are Isotopes
 - Both are not Isotops but are Isobars

33. Ships do not use 'SONAR' technique to:
- To detect large underwater objects.
 - To measure the depth of the water
 - To search for large fish concentration
 - To clean the underwater objects
34. Aerated drinks like soda water are:
- gas in liquid solutions
 - Liquid in gas
 - Gas in gas
 - Solid in liquid
35. Meristematic tissue in plants are:
- Living and Dividing cells
 - Not limited to certain regions
 - Permanent
 - Growing in volume
36. Which of the following is called dry ice?
- Solid CO_2
 - Solid H_2O
 - Solid C
 - Carbon monoxide
37. Which of the following have greater force; F_1 or F_2 ?
- Where, F_1 accelerating a 3 kg mass at 5 ms^{-2} and F_2 , a 4 kg mass at 3 m s^{-2} .
- $F_2 > F_1$
 - $F_1 > F_2$
 - $F_2 = F_1$
 - $F_2 \leq F_1$
38. AIDS can be transmitted by:
- Handshakes
 - Blood transfusion
 - Sexual contact
 - Use of contaminated sharing razors, piercing instruments, syringes, etc

- a. i
- b. i, ii, iii
- c. ii, iii, iv
- d. i, ii, iii, & iv

39. Which of the following is not greenhouse gas?

- a. O₂
- b. CH₄
- c. CO₂
- d. O₃

40. 1 u means:

- a. Mass of C-atom
- b. Mass of C-12 atom
- c. 1/12th mass of C- atom
- d. 1/6th mass of C-atom

41. Which statements are always correct:

- i. Protons are positively charged particles present in the nucleus
 - ii. Electrons are the negatively charged particles revolve around the nucleus
 - iii. Neutrons having no charge present in the nucleus of all the atoms, except hydrogen
 - iv. Protons, neutrons, electrons are the three subatomic particles of an atom
- a. i, ii, & iii
 - b. iv & i
 - c. i, ii, iii, iv
 - d. None of the above

42. Speedometer of the vehicle measures:

- a. Average speed
- b. Average motion
- c. Acceleration
- d. Instantaneous speed

43. Which of the following are homogenous in nature?

- i. Soil
- ii. Air


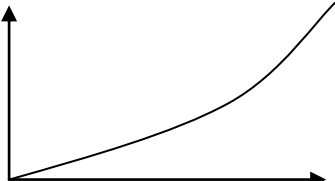
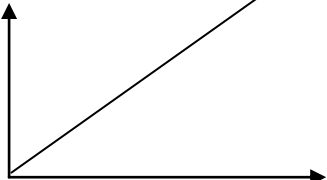
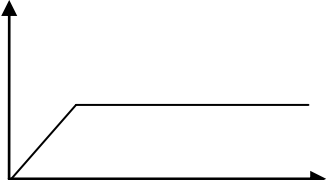
- iii. Ice
 - iv. wood
 - a. (i) and (ii)
 - b. (ii) and (iii)
 - c. (iii) and (iv)
 - d. (i) and (iv)
44. Pascal is the unit of:
- a. Force
 - b. Speed
 - c. Momentum
 - d. pressure
45. Which is the correct statement?
- a. Conversion of solid into liquids called sublimation
 - b. Conversion of vapours into solid without passing through the liquid state is called sublimation
 - c. Conversion of solid into vapours without passing through the liquid state is called vapourization.
 - d. Conversion of vapours into solid without passing through the liquid state is called freezing.
46. We jerk wet clothes before spreading them on clothes line because:
- a. Water gets removed due to inertia of motion.
 - b. Water gets removed due to inertia of rest.
 - c. No inertia is involved it is due to make clothes dry quickly
 - d. All the above mentioned reasons.
47. Unit of Relative density is:
- a. Kilogram per meter cube (kg m^{-3})
 - b. It does not have a unit
 - c. gram per centimetre cube (g cm^{-3})
 - d. g litre^{-1}
48. Which of the following is a non-renewable energy source?
- i. Natural gas
 - ii. Nuclear energy

iii. Solar energy

iv. Wind energy

- a. (i) and (ii) b. (ii) and (iv) c. (i) and (iii) d. (ii) and (iii)

49. Match the two columns, and choose the correct answer from the code given below:

Column I	Column II
i. 	A. Body moving with uniform velocity.
ii. 	B. Body is stationary.
iii. 	C. Initially the body moves with uniform velocity and then stops suddenly.
iv. 	D. When a body is moving with non-uniform velocity

Code:

- a. i, B
 b. ii, C
 c. iii, D
 d. iv, A

50. Compound formed by the combination of Fe^{+3} and SO_4^{2-} is :

- a. FeSO_4
 b. $\text{Fe}(\text{SO}_4)_3$
 c. Fe_2SO_4
 d. $\text{Fe}_2(\text{SO}_4)_3$

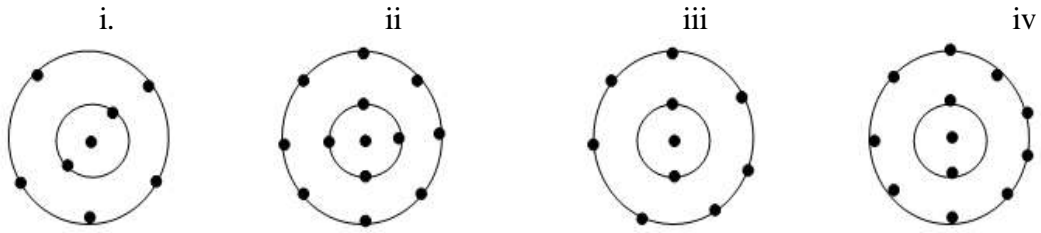
51. The elements which normally exist in the liquid state at room temperature are:

- a. Bromine and mercury
 - b. Mercury and chlorine
 - c. Mercury and iodine
 - d. Bromine and chlorine
52. Which of the following options are not functions of Ribosome?
- i. It helps in protein synthesis.
 - ii. It helps in manufacture of enzymes.
 - iii. It helps in manufacture of hormone.
 - iv. It helps in manufacture of starch molecules.
- a. i & ii
 - b. ii & iii
 - c. iii & iv
 - d. iv & i
53. To keep yourself healthy and disease free, according to you which conditions are essential for being free of disease :
- i. Eating tasty food almost every day outside
 - ii. Keeping your surrounding clean
 - iii. Doing regular exercise
 - iv. Maintaining personal hygiene but not bother about public hygiene
- a. i & iv
 - b. ii, iii
 - c. I, ii, iii, & v
 - d.i & iii
54. The nitrogen cycle involves three major steps. Select the correct sequence of nitrogen cycle:
- a. Nitrogen fixation----→-Nitrification----→ Denitrification
 - b. Nitrification-----→Nitrogen fixation----→ Denitrification
 - c. Denitrification---→ Nitrification----→ Nitrogen fixation
 - d. Nitrification----→ Denitrification---→ Nitrogen fixation
55. Pteridophytes donot have:
- a. Roots
 - b. Stems

- c. Leaves
 - d. Seeds
56. Which are not the examples of uniform circular motion?
- a. motion of an artificial satellite around the earth
 - b. motion of moon around the earth
 - c. A runner running around a circular track.
 - d. A car moving with a same speed on a straight road without changing direction
57. A lamp consumes 1000 Joule electrical energy in 10 s. what is its power?
- a. 60 W
 - b. 40 W
 - c. 100 W
 - d. 120 W
58. Sound wave is not a -----
- a. Mechanical wave
 - b. Longitudinal wave
 - c. Transverse wave
 - d. Electromagnetic wave
59. If you are provided with a colourless liquid. To prove it as a pure water which of the following statement is true.
- a. If the boiling point of water is 100°C
 - b. If the boiling point of water is 120°C
 - c. If the boiling point of water is 130°C
 - d. If the boiling point of water is 135°C
60. Arrange the following in the increasing order of 'forces of attraction'
- a. Water, air, sugar
 - b. Salt, air, juice
 - c. Oxygen, water, sugar
 - d. Sugar, oil, air
61. Farmer 'X' planted Soyabean + Maize + Peas in the same field simultaneously in a set row pattern. Farmer 'Y' planted cereal crop in one season and leguminous plants in next season on the same piece of land in pre-planned succession. Name the cropping pattern used by farmers 'X' and 'Y'. :

- a. 'X' inter-cropping pattern and 'Y' crop- rotation
 - b. 'Y' inter-cropping pattern and 'X' crop- rotation
 - c. 'X' mixed cropping and 'Y' crop-rotation
 - d. 'Y' mixed cropping and 'X' inter-cropping pattern
62. When we stop pedalling the moving bicycle, we find that the bicycle slows down. It is because :
- a. Due to the unbalanced frictional force
 - b. Due to gravitational force
 - c. Due to balanced frictional force
 - d. Centripetal force
63. Which vitamin causes Anemia:
- a. N
 - b. P
 - c. Ca
 - d. Fe
64. Which one of the following movement reflects the awareness to save the environment?
- a. Green Revolution
 - b. Chipko Movement
 - c. Operation flood
 - d. White revolution
65. The basic unit of Classification of organism is:
- a. Species
 - b. Sub-species
 - c. Gene
 - d. Genus
66. Name the elements present in the compound Baking powder :
- a. Sodium, hydrogen, carbon, oxygen
 - b. Sodium, hydrogen, oxygen
 - c. Sodium, carbon, oxygen
 - d. Neon, Hydrogen, carbon, oxygen

67. Which of the following in fig. do not represent Bohr's model of an atom correctly?



- c. ii & iv
 d. i & iv

68. A scooter moving with a uniform speed of 18 Km per hour. What is its speed in m/s ?

- a. 5 m s^{-1}
 b. 18 m s^{-1}
 c. 5.5 m s^{-1}
 d. 1.8 m s^{-1}

69. Fill in the blanks with appropriate word.

-----is defined as the rate of doing work.

- a. Energy
 b. Work done
 c. Power
 d. Force

70. Sound waves with frequencies higher than the upper audible limit of human hearing.

The term used for such a sound is:

- a. Infrasound
 b. Ultrasound
 c. Sonic boom
 d. Echo

71. Which of the following can hear the infrasonic sounds :

- a. Dog
 b. Monkey
 c. Bat
 d. Elephant

72. Evaporation is called as:

- a. Surface phenomena
 b. Bulk phenomena

- c. Unique phenomena
 - d. Both surface and bulk phenomena
73. -----is supplied by water to plants:
- a. Nitrogen and oxygen
 - b. Hydrogen and oxygen
 - c. Carbon and oxygen
 - d. Oxygen
74. If the action is of 5 Newton, then what is the reaction?
- a. 5 N in the forward direction
 - b. 5 N in the opposite direction
 - c. 5 N in the downward direction
 - d. 5 N in the upward direction
75. The tides formed in the sea is due to:
- a. Gravitational pull exerted by the sun and the moon on the surface of water.
 - b. The motion of the moon around the earth
 - c. The motion of planets round the sun
 - d. The force that binds us to the earth
76. Which of the following disease may affect your health?
- a. If you are suffering from Jaundice
 - b. If you are having lice
 - c. If you are having acne
 - d. If you are studying more for your examination
77. A vehicle covers 50 m in east direction and 25 in west direction. Find out the displacement of the vehicle:
- a. 25 m
 - b. 75 m
 - c. 60 m
 - d. 30 m
78. The salt from sea water can have many impurities in it. To remove these impurities, which process is used:
- a. Evaporation
 - b. Crystallization

- c. Sublimation
 - d. Filtration
79. "A cell is a building unit of an organism". Find out the correct sequence?
- a. Cell → tissue → Organ → Organ System → Organism
 - b. Organism → Cell → tissue → Organ → Organ System
 - c. Cell → tissue → Organ → Organism → Organ System
 - d. tissue → cell → Organ → Organism → Organ System
80. In which state of matter, process of diffusion is fastest:
- a. Solids
 - b. Liquids
 - c. Gases
 - d. Semi- solids
81. Which statement is correct about the culture fishery :
- a. is management of catching of fish without raising them
 - b. is the rearing of the fish in freshwater
 - c. is the rearing of fish in sea water
 - d. is the raising of fish in ponds, and tanks
82. It is difficult to walk on the ice due to :
- a. More friction
 - b. Absence of friction
 - c. More inertia
 - d. Absence of inertia
83. If the weight of a man is 90 kg on earth. His weight on moon will :
- a. Remains same
 - b. Decrease
 - c. Increase
 - d. Weightless
84. Vermicompost is :

- a. Prepared by using earthworm.
- b. Prepared by chemical
- c. Prepared by mixing urea and other farm waste
- d. 'b' & 'c' are true

85. Which among these are not fungi:

- a. Spirogyra
- b. Mushroom
- c. Yeast
- d. Penicillium

86. Which Formulae for Aluminum oxide is correct :

- a. Al_2O_3
- b. Al_3O
- c. AlO
- d. AlO_2

A ball is thrown in the vertically upward direction. It rises to the height 10m and comes back to the thrower. Read the question carefully and answer question no.89 to 90:

87. The total distance covered by the ball is :

- a. 20 m
- b. 10 m
- c. Zero
- d. 18 m

88. The total displacement of the ball:

- a. Zero
- b. 20 m
- c. 10 m
- d. 30 m

89. 1 joule work is said to be done when:

- a. A force of 1 N displaces a body by 1 m
- b. A force of 1 N displaces a body by 1 cm
- c. A force of 1 dyne displaces a body by 1 m
- d. A force of 1 dyne displaces a body by 1 cm

90. Which of the following is not a part of nerve cells :

- a. Axon
- b. Synaptic terminal
- c. Tendon
- d. Dendrites

91. Match the two columns, and choose the correct answer from the code given:

Column-I	Column II
i. Gases are separated from each other by	A. Chromatography
ii. A mixture of ammonium chloride and salt	B. Fractional distillation
iii. A mixture of cooking oil and water can be separated by	C. Separating funnel
iv. The dyes present in fountain pen ink can be separated by the technique of	D. Sublimation

Codes:

- (i) (ii) (iii) (iv)
- a. (A) (B) (C) (D)
- b. (B) (D) (C) (A)
- c. (D) (C) (B) (A)
- d. (B) (D) (A) (C)

92. The speed of 36 km/hr is equal to ----- :

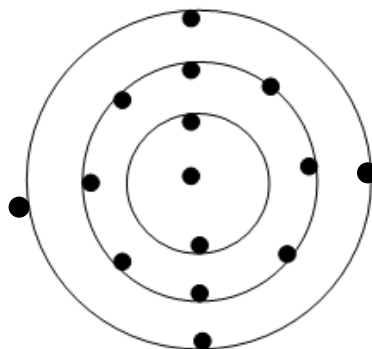
- a. 5 m/s b. 10 m/s
- c. 36 m/s d. 18 m/s

93. Chromoplasts are present in which parts of the plant?

- a. Flowers & fruits
- b. Flowers & leaves

- c. Leaves & fruits
 - d. Roots & stems
94. Gases can be Liquified :
- a. By applying pressure and reducing temperature
 - b. By raising temperature only
 - c. By applying pressure and increasing temperature
 - d. By lowering pressure and temperature
95. Find out the option not correctly paired:
- a. plasma membrane: :Living membrane
 - b. cell wall:: Non-living membrane
 - c. Composition of plant cell:: Cellulose
 - d. Composition of animal cell: :Cellulose, Proteins and Lipids
96. Which of the following organism have an open circulatory system :
- i. Nematoda ii. Arthropoda
 - iii. Mollusca iv. Echinodermata
- a. (i) & (ii) b. (i) & (iii) c. (ii) & (iii) d.(i) & (iv)

Given below is the schematic diagram showing distribution of electrons in its shells. Observe it carefully and answer questions from 146 to 150.



97. The electronic configuration is :
- a. 8,7,2
 - b. 8, 2, 2
 - c. 2, 8, 4
 - d. 2, 2, 8

98. The distribution of electron is of :

- a. Sulphur atom
- b. Phosphorus atom
- c. Chlorine atom
- d. Silicon atom

99. What is the number of protons (p), neutrons (n) and valency (v) of the atom?

- a. P=12, n=12, v=2
- b. P=13, n=14, v=3
- c. P= 14, n= 14, v=4
- d. P=16, n=16, v=2

100. What is the atomic number of the atom of Silicon is

- a. 13
- b. 14
- c. 15
- d. 16

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

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