

RAISE 2020
(Reynott Academics and Intelligence Scholarship Examination)
SAMPLE PAPER
Class - 11th

Syllabus of the Test : Science & Mathematics of Class 10th

Time : 2 Hrs.

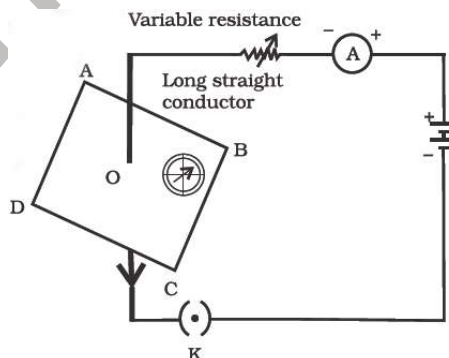
MM : 360

GENERAL INSTRUCTIONS :

1. All questions are compulsory.
2. Blank paper, clipboard, log tables, calculators, cellular phones and electronic gadgets in any form are not allowed inside the examination hall.
3. Use only Black/Blue Ball Pen for filling the OMR. Do not use Gel/ Ink/ Felt pen as it might smudge the OMR.
4. For each right answer you will be **awarded 4 marks** if you darken the bubble corresponding to the correct answer and zero marks if no bubble is darkened. In case of bubbling of incorrect answer, **NO NEGATIVE MARK** will be awarded.
5. This Question Paper consists of 90 questions. Please check before starting to attempt. The question paper consists of five Sections, Section-A (Physics: 1 to 15), Section-B (Chemistry: 16 to 30), Section-C (Biology: 31 to 45), Section-D (Mathematics: 46 to 70), Section-E (Mental Ability: 71 to 90).

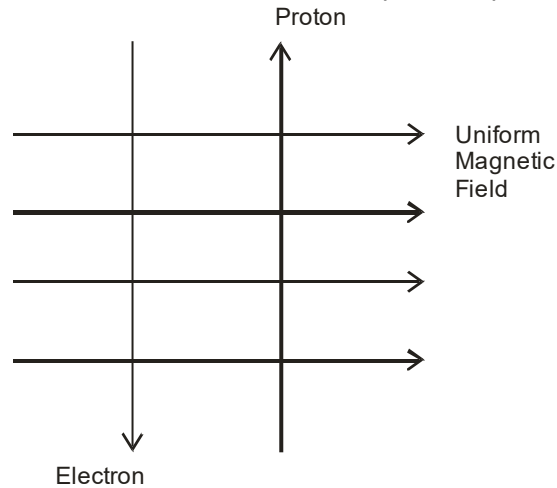
SECTION-A (PHYSICS)

1. If the key in the arrangement is taken out (the circuit is made open) and magnetic field lines are drawn over the horizontal plane ABCD, the lines are
 - (A) concentric circles
 - (B) elliptical in shape
 - (C) straight lines parallel to each other
 - (D) concentric circles near the point O but of elliptical shapes as we go away from it

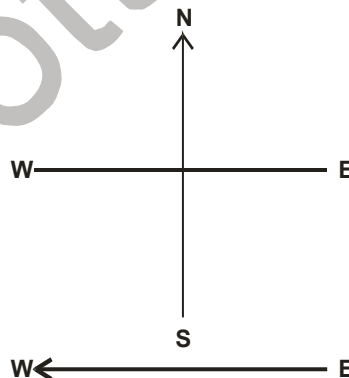


2. Commercial electric motors do not use
 - (A) an electromagnet to rotate the armature
 - (B) effectively large number of turns of conducting wire in the current carrying coil
 - (C) a permanent magnet to rotate the armature
 - (D) a soft iron core on which the coil is wound

3. A uniform magnetic field exists in the plane of paper pointing from left to right as shown in Figure. In the field an electron and a proton move as shown. The electron and the proton experience

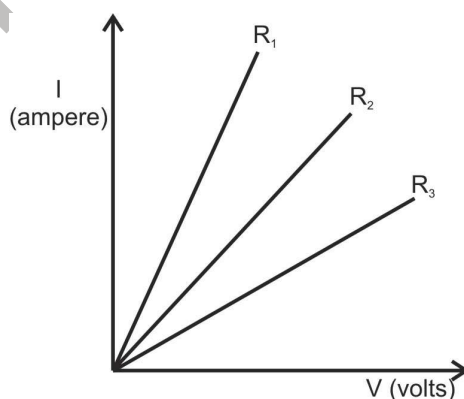


- (A) forces both pointing into the plane of paper
 (B) forces both pointing out of the plane of paper
 (C) forces pointing into the plane of paper and out of the plane of paper, respectively
 (D) force pointing opposite and along the direction of the uniform magnetic field respectively.
4. Choose the incorrect statement
- (A) Fleming's right-hand rule is a simple rule to know the direction of induced current
 (B) The right-hand thumb rule is used to find the direction of magnetic fields due to current carrying conductors
 (C) The difference between the direct and alternating currents is that the direct current always flows in one direction, whereas the alternating current reverses its direction periodically
 (D) In India, the AC changes direction after every $\frac{1}{50}$ second
5. A constant current flows in a horizontal wire in the plane of the paper from east to west as shown in Figure. The direction of magnetic field at a point will be North to South



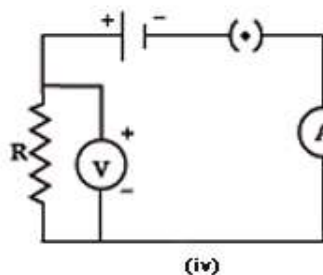
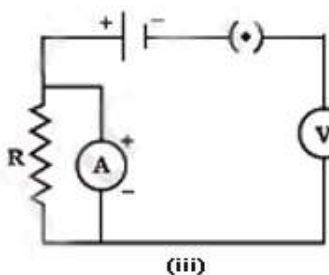
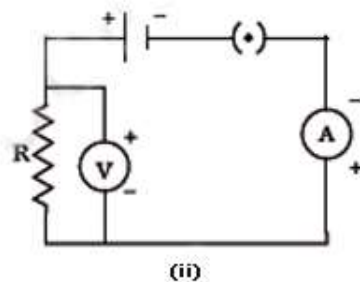
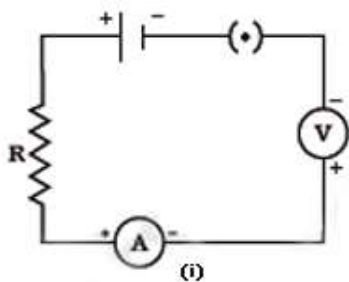
- (A) directly above the wire
 (B) directly below the wire
 (C) at a point located in the plane of the paper, on the north side of the wire
 (D) at a point located in the plane of the paper, on the south side of the wire
6. The strength of magnetic field inside a long current carrying straight solenoid is
- (A) more at the ends than at the centre
 (B) minimum in the middle
 (C) same at all points
 (D) found to increase from one end to the other

7. To convert an AC generator into DC generator
- (A) split-ring type commutator must be used
(B) slip rings and brushes must be used
(C) a stronger magnetic field has to be used
(D) a rectangular wire loop has to be used
8. Unit of electric power may also be expressed as
- (A) volt ampere (B) kilowatt hour
(C) watt second (D) joule second
9. In an electrical circuit two resistors of $2\ \Omega$ and $4\ \Omega$ respectively are connected in series to a $6\ \text{V}$ battery. The heat dissipated by the $4\ \Omega$ resistor in $5\ \text{s}$ will be
- (A) $5\ \text{J}$ (B) $10\ \text{J}$
(C) $20\ \text{J}$ (D) $30\ \text{J}$
10. An electric kettle consumes $1\ \text{kW}$ of electric power when operated at $220\ \text{V}$. A fuse wire of what rating must be used for it?
- (A) $1\ \text{A}$ (B) $2\ \text{A}$
(C) $4\ \text{A}$ (D) $5\ \text{A}$
11. In an electrical circuit three incandescent bulbs A, B and C of rating $40\ \text{W}$, $60\ \text{W}$ and $100\ \text{W}$ respectively are connected in parallel to an electric source. Which of the following is likely to happen regarding their brightness?
- (A) Brightness of all the bulbs will be the same
(B) Brightness of bulb A will be the maximum
(C) Brightness of bulb B will be more than that of A
(D) Brightness of bulb C will be less than that of B
12. If the current I through a resistor is increased by 100% (assume that temperature remains unchanged), the increase in power dissipated will be
- (A) 100% (B) 200%
(C) 300% (D) 400%
13. A student carries out an experiment and plots the V-I graph of three samples of nichrome wire with resistances R_1 , R_2 and R_3 respectively. Which of the following is true?

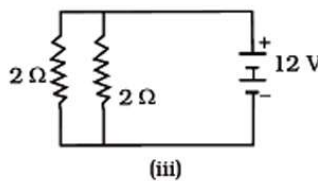
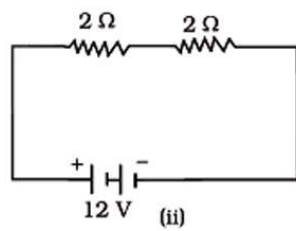
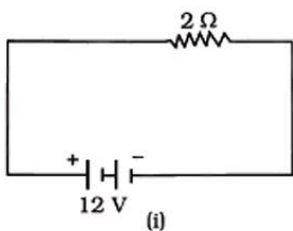


- (A) $R_1 = R_2 = R_3$
(B) $R_1 > R_2 > R_3$
(C) $R_3 > R_2 > R_1$
(D) $R_2 > R_3 > R_1$

14. Identify the circuit in which the electrical components have been properly connected.



- (A) (i) (B) (ii)
 (C) (iii) (D) (iv)
15. In the following circuits, heat produced in the resistor or combination of resistors connected to a 12 V battery will be



- (A) same in all the cases (B) minimum in case (i)
 (C) maximum in case (ii) (D) maximum in case (iii)

SECTION-B (CHEMISTRY)

16. Which element is found in human body
 (A) Pb (B) Fe
 (C) Cd (D) All
17. Which substance can be used for drying gases
 (A) CaCO_3 (B) Na_2CO_3
 (C) CaHCO_3 (D) CaO
18. The most malleable metal is
 (A) Silver (B) Sodium
 (C) Gold (D) Platinum
19. The volatile metal is
 (A) Ag (B) Cu
 (C) Zn (D) Fe
20. Which one of the following non-metals is conductor of electricity
 (A) Lead (B) Phosphorus
 (C) Sulphur (D) Graphite

21. One of the characteristic properties of non-metals is that they
(A) are reducing agents (B) form basic oxides
(C) form cations by gaining electron (D) are electronegative
22. The nonfusible impurities of ores are removed by adding:
(A) Flux (B) Slag
(C) Gangue (D) None of these
23. Which metal is extracted by electrolytic reduction
(A) Iron (B) Copper
(C) Silver (D) Aluminium
24. Red litmus turns blue in the contact of aqueous solution of
(A) H_2SO_4 (B) FeSO_4
(C) K_2SO_4 (D) Na_2SO_3
25. An acid used in lead storage batteries is
(A) H_2SO_4 (B) HNO_3
(C) HCl (D) CH_3COOH
26. Lime water is
(A) CaO (B) $\text{Ca}(\text{OH})_2$
(C) $\text{C}_2\text{H}_5\text{OH}$ (D) CH_3COOH
27. Which of the following is the weakest base
(A) NaOH (B) $\text{Ca}(\text{OH})_2$
(C) NH_4OH (D) KOH
28. Calcium sulphate hemihydrate is commonly known as
(A) plaster of paris (B) gypsum
(C) ferrous sulphate (D) none of these
29. Which of the following salts are acidic in aqueous solutions
(A) $(\text{NH}_4)_2\text{SO}_4$ (B) Na_2CO_3
(C) CuSO_4 (D) AgNO_3
30. In Solvay process, the salt that separates out when CO_2 gas is passed through brine, saturated with ammonia is
(A) NH_4HCO_3 (B) NaHCO_3
(C) Na_2CO_3 (D) CaCl_2

SECTION-C (BIOLOGY)

31. Carbohydrates in the plants are stored in the form of
(A) Glycogen (B) Starch
(C) Glucose (D) Maltose
32. Main site of photosynthesis
(A) Leaf (B) Stem
(C) Chloroplast (D) Guard cells
33. The small pores present of leaf's surface are called
(A) Stomata (B) Chlorophyll
(C) Guard cells (D) None of these
34. Photosynthesis is a
(A) Catabolic process (B) Parabolic process
(C) Amphibolic process (D) Photochemical process

35. Opening and closing of pores is a function performed by
(A) Stomata (B) Chlorophyll
(C) Chloroplast (D) Guard cells
36. Bile juice is secreted by
(A) Stomach (B) Pancreas
(C) Small intestine (D) Liver
37. Temporary finger like extensions on amoeba are called
(A) Cell membrane (B) Cell wall
(C) Pseudopodia (D) Cilia
38. Lipase acts on
(A) Amino acids (B) Fats
(C) Carbohydrates (D) All of these
39. Respiratory pigment in human body is
(A) Chlorophyll (B) Water
(C) Blood (D) haemoglobin
40. Blood consist of what fluid medium?
(A) Lymph (B) Platelets
(C) Plasma (D) All of these
41. Which of these is not a raw material for photosynthesis?
(A) Carbon dioxide (B) Water
(C) Oxygen (D) None of these
42. The process of digestion of food in humans begins in:
(A) stomach (B) food pipe
(C) mouth (D) small intestine
43. In human digestive system, bile is secreted by
(A) pancreas (B) liver
(C) kidneys (D) stomach
44. Villi are present in
(A) Pancreas (B) Stomach
(C) Small intestine (D) Oesophagus
45. Which of the following metal is associated with heamoglobin?
(A) Aluminum (B) Iron
(C) Potassium (D) Calcium

SECTION-D (MATHEMATICS)

46. For some integer q , every odd integer is of the form
(A) q (B) $q + 1$
(C) $2q$ (D) $2q + 1$
47. The product of a non-zero rational and an irrational number is
(A) always irrational (B) always rational
(C) rational or irrational (D) one
48. Graphically, the pair of equations
 $6x - 3y + 10 = 0$
 $2x - y + 9 = 0$
represents two lines which are
(A) intersecting at exactly one point (B) intersecting at exactly two points
(C) coincident (D) parallel

49. If the lines given by $3x + 2ky = 2$ and $2x + 5y + 1 = 0$ are parallel, then the value of k is
- (A) $\frac{-5}{4}$ (B) $\frac{2}{5}$
(C) $\frac{15}{4}$ (D) $\frac{3}{2}$
50. If a pair of linear equations is consistent, then the lines will be
- (A) parallel (B) always coincident
(C) intersecting or coincident (D) always intersecting
51. Which of the following equations has 2 as a root?
- (A) $x^2 - 4x + 5 = 0$ (B) $x^2 + 3x - 12 = 0$
(C) $2x^2 - 7x + 6 = 0$ (D) $3x^2 - 6x - 2 = 0$
52. Which of the following is not a quadratic equation?
- (A) $2(x - 1)^2 = 4x^2 - 2x + 1$ (B) $2x - x^2 = x^2 + 5$
(C) $(\sqrt{2x}\sqrt{3})^2 x^2 3x^2 5x$ (D) $(x^2 + 2x)^2 = x^4 + 3 + 4x^3$
53. The lengths of the diagonals of a rhombus are 16 cm and 12 cm. Then, the length of the side of the rhombus is
- (A) 9 cm (B) 10 cm
(C) 8 cm (D) 20 cm
54. In triangles ABC and DEF, $\angle B = \angle E$, $\angle F = \angle C$ and $AB = 3 DE$. Then, the two triangles are
- (A) congruent but not similar (B) similar but not congruent
(C) neither congruent nor similar (D) congruent as well as similar
55. The value of $(\tan 1^\circ \tan 2^\circ \tan 3^\circ \dots \tan 89^\circ)$ is
- (A) 0 (B) 1
(C) 2 (D) $\frac{1}{2}$
56. If $\sin A = \frac{1}{2}$, then the value of $\cot A$ is
- (A) $\sqrt{3}$ (B) $\frac{1}{\sqrt{3}}$
(C) $\frac{\sqrt{3}}{2}$ (D) 1
57. A pole 6 m high casts a shadow $2\sqrt{3}$ m long on the ground, then the Sun's elevation is
- (A) 60° (B) 45°
(C) 30° (D) 90°
58. The decimal expansion of number $\frac{441}{2^2 \times 5^3 \times 7}$ has:
- (A) a terminating decimal (B) non-terminating but repeating
(C) non-terminating non repeating (D) terminating after two places of decimal
59. For any positive integer a and 3, there exist unique integers q and r such that $a = 3q + r$, where r must satisfy:
- (A) $0 \leq r < 3$ (C) $1 < r < 3$
(C) $0 < r < 3$ (D) $0 < r \leq 3$
60. $\pi - \frac{11}{7}$ is:
- (A) a rational number (B) an irrational number
(C) a prime number (D) an even number

61. L.C.M. of 23×32 and 22×33 is:
- (A) 23 (B) 33
(C) 22×32 (D) None of these
62. Six bells commence tolling together and toll at intervals of 2, 4, 6, 8, 10 and 12 seconds respectively. In 30 minutes, how many times do they toll together ?
- (A) 4 (B) 10
(C) 15 (D) 16
63. What will be the least possible number of the planks, if three pieces of timber 42 m, 49 m and 63 m long have to be divided into planks of the same length?
- (A) 5 (B) 6
(C) 7 (D) None of these
64. Customers are asked to stand in the lines. If one customer is extra in a line, then there would be two less lines. If one customer is less in line, there would be three more lines. Find the number of students in the class.
- (A) 40 (B) 50
(C) 60 (D) 70
65. 8 girls and 12 boys can finish work in 10 days while 6 girls and 8 boys can finish it in 14 days. Find the time taken by the one girl alone and that by one boy alone to finish the work.
- (A) 120, 130 (B) 140, 280
(C) 240, 280 (D) 100, 120
66. Every quadratic polynomial can have at most
- (A) three zeros (B) one zero
(C) two zeros (D) none of these
67. If $x^2 + 5px + 16$ has no real roots, then
- (A) $p > \frac{8}{5}$ (B) $-\frac{8}{5} < P < \frac{8}{5}$
(C) $P < -\frac{8}{5}$ (D) None of these
68. For $ax^2 + bx + c = 0$, which of the following statement is wrong?
- (A) If $b^2 - 4ac$ is a perfect square, the roots are rational.
(B) If $b^2 = 4ac$, the roots are real and equal.
(C) If $b^2 - 4ac$ is negative, no real roots exist.
(D) If $b^2 = 4ac$, the roots are real and unequal.
69. The roots of the equation $9x^2 - bx + 81 = 0$ will be equal, if the value of b is
- (A) ± 9 (B) ± 18
(C) ± 27 (D) ± 54
70. Which of the following is not a quadratic equation?
- (A) $3x^2 - 5x + 9$ (B) $x + \frac{1}{x} = 1$
(C) $x^2 - 9x = 0$ (D) $x^3 - 2x - \sqrt{5} = 0$

SECTION-E (MENTAL ABILITY)

71. Three out of the four pairs of numbers have the same relationship. Find the odd-man out?
 (A) 4 : 63 (B) 1 : 0
 (C) 5 : 124 (D) 2 : 15
72. Find the odd-man out?
 (A) DEHG (B) RSVU
 (C) XYBA (D) LMQP
73. Choose the odd pair of words.
 (A) Volume : Litre (B) Time : Seconds
 (C) Length : Metre (D) Pressure : Barometer

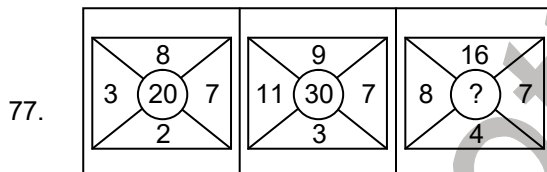
Directions : (Q. 74 to Q. 76)

In the following questions, choose the missing word in place of sign “?” On the basis of the relationship between the words given on the left / right hand side of sign :

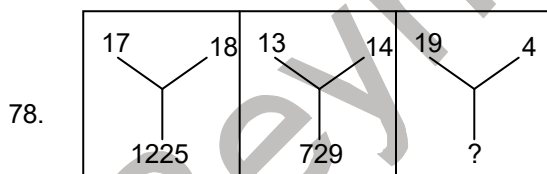
74. Aluminium : Bauxite :: Iron : ?
 (A) Pyrite (B) Magnesite
 (C) Pyrdusite (D) Haematite
75. Eye : Wink :: Heart : ?
 (A) Move (B) Throb
 (C) Pump (D) Quiver
76. 7, 17, 31, 49, 97, 127
 (A) 59 (B) 61
 (C) 71 (D) 87

Directions (Q. 77 & Q. 78) :

In these figures some numbers are given. These numbers follow a certain system. One such number is missing. Find out the number from the given choices.



- (A) 40 (B) 25
 (C) 29 (D) 35



- (A) 639 (B) 542
 (C) 529 (D) 641

Directions : (Q. 79 to Q. 83) :

Read the information carefully and answer the questions based on it.

- (i) Six flats on a floor in two rows facing north and south are allotted to P, Q, R, S, T and U.
 (ii) Q gets a north facing flat and is not next to S.
 (iii) S and U get diagonally opposite flats.
 (iv) R next to U, gets a south facing flat and T gets a north facing flat.
79. Whose flat is between Q and S ?
 (A) T (B) U
 (C) R (D) P

80. The flats of which of the other pairs than SU, is diagonally opposite to each other ?
 (A) PT (B) QP
 (C) QR (D) TS
81. If the flats of T and P are interchanged, whose flat will be next to that of U ?
 (A) Q (B) T
 (C) P (D) R
82. Which of the combinations get south facing flats ?
 (A) URP (B) UPT
 (C) QTS (D) Data inadequate
83. To arrive at the answers to the above questions, which of the following statements can be dispensed with ?
 (A) None (B) (i) only
 (C) (ii) only (D) (iii) only
84. There are six houses in a row. Mr. Lal has Mr. Bhasin and Mr. Sachdeva as neighbours. Mr. Bhatia has Mr. Gupta and Mr. Sharma as neighbours. Mr. Gupta's house is not next to Mr. Bhasin or Mr. Sachdeva and Mr. Sharma does not live next to Mr. Sachdeva. Who are Mr. Bhasin's next door neighbour ?
 (A) Mr. Lal and Mr. Bhasin (B) Mr. Lal and Mr. Sachdeva
 (C) Mr. Sharma and Mr. Lal (D) Only Mr. Lal

Directions (Q. 85 & Q. 86) :

In each of the following questions below, find out the correct answer from the given alternatives.

85. In a certain code, INSTITUTION is written as NOITUTITSNI. How is PERFECTION written in that code ?
 (A) NOICTEFREP (B) NOITCEFERP
 (C) NOITCEFRPE (D) NOITCEFREP
86. In a certain code, GIGANTIC is written as GIGTANCI. How is MIRACLES written in that code ?
 (A) MIRLCAES (B) MIRLACSE
 (C) RIMCALSE (D) RIMLCAES

Directions (Q. 87 & Q. 90) :

Read the information carefully and answer the questions based on it.

Six persons are sitting in a circle. A is facing B. B is to the right of E and left of C. C is to the left of D. F is to the right of A. Now D exchanges his seat with F, and E with B.

87. Who will be sitting to the left of D?
 (A) B (B) D
 (C) E (D) A
88. Who will be sitting of the left of C?
 (A) E (B) F
 (C) A (D) B
89. Who will be sitting opposite of A?
 (A) E (B) F
 (C) D (D) B
90. Who will be sitting opposite of C?
 (A) C (B) D
 (C) B (D) A





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RAISE 2020

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SAMPLE PAPER

Class - 11th

ANSWER KEY

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

