NARAYANA
IIT-JEE/NEET/FOUNDATION
JAIPUR CENTER

46 YEARS OF EXCELLENCE

N-ASAT

NARAYANA ADMISSION & SCHOLARSHIP APTITUDE TEST

SAMPLE TEST PAPER

CLASS 10 (MOVING TO 11)

Your Gateway to Desired Success in

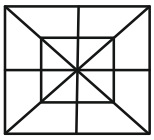
JEE (Main+Adv) / NEET

GENERAL INSTRUCTIONS:

This test paper contains **95 Multiple choice questions but you need to attempt only 75 questions. Kindly select any one subject out of Biology & Mathematics as per your selected course. Students opting for NEET will attempt Biology and Students opting for JEE will attempt Mathematics.** Each questions have four choices (A), (B), (C) and (D) out of which **ONLY ONE** is correct. For every correct answer **4 marks** are awarded and for wrong answer there is a negative marking of **1 mark**. No marks awarded for unattempted questions.

REASONING ABILITY

1. What is the total number of triangles and total numbers of squares in the give figure?



(A) 28 triangles, 10 squares
(B) 28 triangles, 8 squares
(C) 32 triangles, 10 squares
(D) 32 triangles, 8 squares

2. Given that the total cost of 5 erasers, 7 sharpeners and 9 pencils is Rs. 100 and the total cost of 2 erasers, 6 sharpeners and 10 pencils is Rs. 80. What is the total cost (in Rs.) of one eraser, one sharpener and one pencil?

(A) 10
(B) 15
(C) 20
(D) 18

3. From among the four alternatives gives below, which figure replaces the question mark?

(A) 
(B) 
(C) 
(D) 

4. Identify the missing number in the following sequence:

10, 40, 90, 61, 52, ?

(A) 73
(B) 85
(C) 113
(D) 63

5. Here are some words translated from an artificial language

'mie pie' is 'blue light'

'mie tie' is 'blue berry'

'aie tie' is 'rasp berry'

Which words could possible mean "light fly"?

(A) pie zie
(B) pie mie
(C) aie zie
(D) aie mie

6. In a dairy, there are 60 cows and buffalos. The number of cows is twice that of buffalos. Buffalo X ranked seventeenth in terms of milk delivered. If there are 9 cows ahead of Buffalo X, how many buffalos are after in rank in terms of milk delivered?

(A) 10 (B) 11

(C) 12 (D) 13

Direction Question (7 to 11) are based on the following information: $\alpha, \beta, \gamma, \delta, \in, \phi, \psi, \eta$ are setting on a merry-go-round facing at the centre. δ is second to the left on η who is third to the left of α. β is fourth to the right of γ who is immediate neighbour of η. ψ is not a neighbour of β or γ. ϕ is not a neighbour of β.

7. Who is third to the left of β.

(A) α (B) γ

(C) ϕ (D) Ψ

8. In which of the following pairs is the first person sitting to the immediate right of the second person?

(A) δ, Ψ (B) β, ϵ (C) η, β (D) Ψ, η

9. What is ϕ 's position with respect to ψ ?

(A) Third towards right (B) Third towards left

(C) Second towards right (D) Second towards left

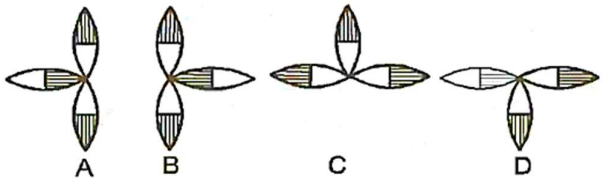
10. Who is sitting between α and β ?

(A) Both $\in$ and η (B) Both ϕ and γ (C) Only $\in$ (D) Only η

11. How many of them are sitting between γ and β ?

(A) 0 or 6 (B) 1 or 5 (C) 2 or 4 (D) 3

12. Find the odd one out



(A) A (B) B (C) C (D) D

13. Select the correct number that is missing in the number series given below:
214, 265, 367, ?, 724
(A) 520 (B) 501 (C) 525 (D) 571

14. Select the correct alphabet number that is missing in the alphabet-number series given below:
NAJ31, BEF28, RAM31, ?, YAM31
(A) RPA31 (B) PRA30 (C) RPA30 (D) PAR31

15. What is the next number in the series 7, 23, 55, 109…?
(A) 199 (B) 189
(C) 191 (D) 209

16. Which of the following alternatives will fit in place of 'M'?
L6, O8, R11, M, X25, A42, D75
(A) U15 (B) U16
(C) W14 (D) U14

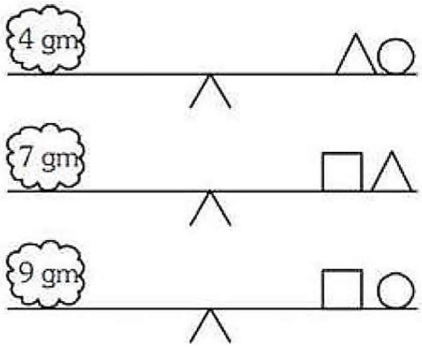
17. Pointing to a woman, Abhijit said, "Her grand-daughter is the only daughter of my brother". How is the women related to Abhijit?
(A) Sister (B) Grand Mother
(C) Mother-in-law (D) Mother

18. Manish goes 7km towards south-East from his house, then he goes 14km turning to west. After he goes 7km towards North-West and in the end, he goes 9km towards East. How far is he from his house?
(A) 5km (B) 7km
(C) 2 km (D) 14km

19. Just before sunset Veena and Zeba were talking to each other standing face-to-face. If Veena sees Zeba's shadow to be exactly towards the right of Zeba, which direction was Veena facing?
(A) South (B) North
(C) East (D) North-East

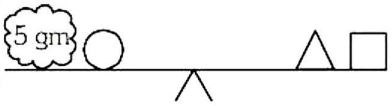
20. Which of the given alternative is the mirror image of NARAYANA, if the mirror is placed below the word?
(A) NARAYANA (B) ИАЯАУАИА
(C) АИАУАЯАИ (D) ИАЯАУАИА

21. Observe the following figures representing a balance.



Which of the following figures represents the correct balance?

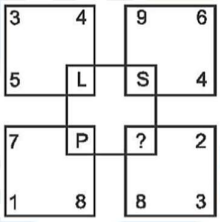
(A) 

(B) 

(C) 

(D) 

22. Find the letter to be placed in place of '?' in the figure given.



(A) M (B) N

(C) Q (D) R

23. How many 7's are there in following number sequence each of which is immediately preceded by 8 and not immediately followed by 2?

5 8 7 1 2 8 1 8 2 2 7 8 2 8 7 8 5 7 8 7 2 1 3

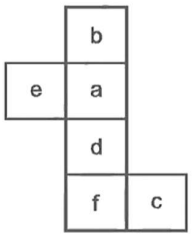
(A) One

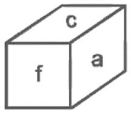
(B) Two

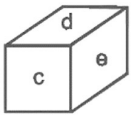
(C) Six

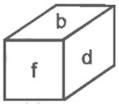
(D) Four

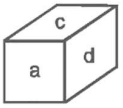
24. If the given figure is folded to form a box, which among the boxes below will be formed?



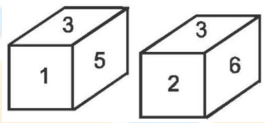
(A) 

(B) 

(C) 

(D) 

25. Two positions of a dice are shown. Which number will appear on the face opposite the one having 5?



(A) 1 (B) 2

(C) 4 (D) 6

PHYSICS

26. What would be the angle of incidence for a light ray having zero reflection angle?

(A) 180 Degree (B) 90 Degree

(C) 0 Degree (D) 45 Degree

27. How does the eye change in order to focus on near or distant objects?

(A) The lens moves in or out (B) The pupil gets smaller

(C) The retina moves in or out (D) The lens becomes thicker or thinner

28. Electrical resistivity of a metallic wire depends upon its-

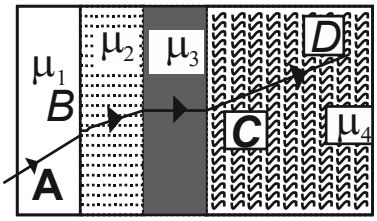
(A) Length (B) Material (C) Thickness (D) Shape

29. The force exerted on current carrying wire placed in a magnetic field is zero when the angle between the wire and the direction of the magnetic field is ------

(A) 180 degree (B) 45 degree

(C) 90 degree (D) 60 degree

30. A ray of light passes through four transparent media with refractive indices μ_1, μ_2, μ_3 and μ_4 as shown in the Figure. The surfaces of all media are parallel. If the emergent ray CD is parallel to the incident ray AB, then



(A) $\mu_1 = \mu_2$ (B) $\mu_2 = \mu_3$

(C) $\mu_3 = \mu_4$ (D) $\mu_4 = \mu_1$

31. The crystalline lens of people at old age becomes milky and cloudy; this condition is known as:

(A) Hypermetropia (B) Myopia

(C) Cataract (D) Presbyopia

32. A heater coil is cut into two equal parts and only one part is now used in the heater. The heat generated will now be (assuming the potential difference is same in both cases).

(A) One – fourth (B) Halved

(C) Doubled (D) Four times

33. The magnetic field at a distance r from a long wire carrying current I is 0.4 Tesla. The value of magnetic field at a distance of 2r is

(A) 0.2 T (B) 0.1 T

(C) 0.15 T (D) 1 T

34. When we see an object, then image formed on the retina is:

(A) Real and inverted (B) Real and erect

(C) Virtual and erect (D) Virtual and inverted

35. Assertion: The near point of a hypermetropic eye is more than 25 cm away.

Reason: Hypermetropia is corrected using spectacle containing concave lenses.

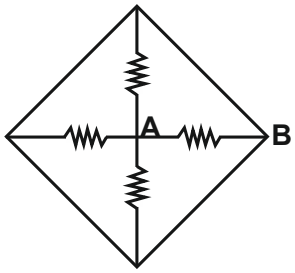
(A) Both A and R are true and R is the correct explanation of (a)

(B) Both A and R are true, but R is not the correct explanation of (a)

(C) A is true but R is false

(D) A is false but R is true

36. In the give circuit, each resistor has resistance R. The equivalent resistance between A and B is



(A) $\frac{R}{4}$ (B) 4 R

(C) $\frac{3R}{4}$ (D) $\frac{4R}{3}$

37. A charged particle moves with velocity v in a uniform magnetic field B. The magnetic force experienced by the particle is

(A) Always zero

(B) Never zero

(C) Zero if B and v are perpendicular

(D) Zero if B and v are parallel.

38. The nature of the image of a real object formed by a convex mirror is

(A) Real, inverted, diminished

(B) Real, inverted, enlarged

(C) Virtual, erect, diminished

(D) Virtual, erect, enlarged

39. The focal length of a concave mirror is 10cm. The position of the real object that is useful for getting an enlarged image which can be caught on a screen is

(A) Placed at a distance of 5 cm, from the pole of the mirror

(B) Placed at a distance of 15 cm from the pole of the mirror

(C) Placed at a distance of 35 cm from the pole of the mirror

(D) Placed at a distance of 4 cm from the pole of the mirror

40. Copper is used in electric transmission lines because of its:

(A) High resistivity (B) Low resistivity

(C) No resistivity (D) none of these option

41. Copper can't displace zinc from zinc sulphate solution because copper is

(A) more reactive than zinc
(B) less reactive than zinc
(C) more stable than zinc
(D) less stable than zinc

42. The acid present in the sting of red ant is _____.

(A) formic acid
(B) acetic acid
(C) nitric acid
(D) sulphuric acid

43. During extraction of metals, electrolytic refining is used to obtain pure metals. Material which will be used as anode, for refining of silver metal by this process, is:

(A) zinc
(B) impure silver
(C) pure silver
(D) iron

44. The primary suffix for $C \equiv C$ bond is:

(A) -yne
(B) –are
(C) -ene
(D) ane

45. Which of the following metals can occur in the native form?

(A) Lithium
(B) Silver
(C) Calcium
(D) Sodium

46. Oils on treating with hydrogen in the presence of palladium or nickel catalyst form fats. This is an example of _____.

(A) addition reaction
(B) substitution reaction
(C) displacement reaction
(D) oxidation reaction

47. Which one of the following would result in a displacement reaction?

(A) Iron with magnesium chloride
(B) Magnesium with iron chloride
(C) Iron with Zinc Sulphate
(D) Gold with silver nitrate

48. In which of the following bleaching powder is not used?

(A) For bleaching wood pulp
(B) For water sterilization
(C) As an oxidizing agent
(D) For sugar decolorization

49. Reaction of metals with sulphuric acid generally produces:

(A) SO_2 gas (B) H_2 gas

(C) O_2 gas (D) SO_3 gas

50. Two neighbours of homologous series differ by:

(A) CH (B) CH_2

(C) CH_3 (D) CH_4

51. Which of the following statements about the given reaction is/are correct?

$3Fe(s)+4H_2O(g) \rightarrow Fe_3O_4(s)+4H_2(g)$

(i) Iron metal is getting oxidised.

(ii) Water is getting reduced.

(iii) Water is acting as reducing agent.

(iv) Water is acting as oxidizing agent.

(A) (i), (ii) and (iii) (B) (iii) and (iv)

(C) (i), (ii) and (iv) (D) (ii) and(iv)

52. Use of a mild base like _____ on the bee sting area gives relief.

(A) hydrogen chloride (B) nitric acid

(C) baking soda (D) sodium chloride

53. $Al_2(SO_4)_3(aq)+3Ca(OH)_2(aq) \rightarrow 2Al(OH)_3(s)+3CaSO_4(s)$

The given reaction is an example of:

(A) Combination reaction

(B) Double displacement reaction

(C) Decomposition reaction

(D) Combustion reaction

54. Which of the following is not a olfactory indicator?

(A) Raw onion

(B) Vanilla essence

(C) Clove oil

(D) Methyl Orange

55. Which of the following pairs of substances, on reaction, will not evolve H_2 gas?

(A) Iron and H_2SO_4(aq) (B) Iron and steam

(C) Copper and HCl (g) (D) Sodium and HCl(aq)

56. Intestinal villi are mainly concerned with:

(A) Assimilation (B) Secretion (C) Ultrafiltration (D) Absorption

57. Neuron cannot -

(A) Detect stimuli (B) Receive stimuli

(C) Transmit stimuli (D) Regenerate/divide

58. In which of these organism is cell division itself is not a mode of reproduction?

(A) *Amoeba* (B) *E. coli* (C) *Euglena* (D) *Hydra*

59. On which plant Mendel had carried out his investigations:-

(A) Garden Pea (B) Wild Pea (C) Cow Pea (D) Pigeon Pea

60. Normal expiration involves:

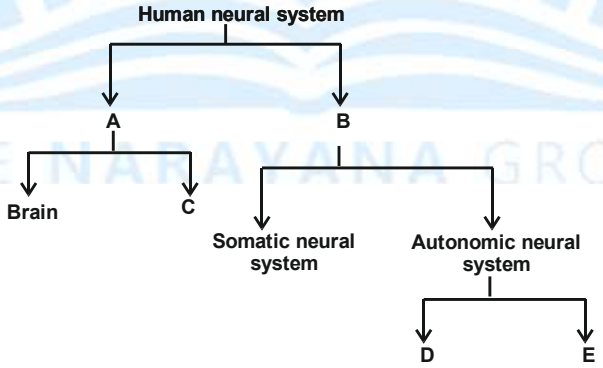
(A) Relaxation of diaphragm and intercostal muscles

(B) Contraction of diaphragm and intercostal muscles

(C) Contraction of diaphragm muscles

(D) Contraction of intercostal muscles

61. Identify A, B, C, D and E:



(A) A – Central nervous system (CNS), B – Peripheral nervous system (PNS), C – Spinal cord, D – Sympathetic neural system, E – Parasympathetic neural system.

(B) A – Peripheral nervous system (PNS), B – Parasympathetic neural system, C – Central nervous (CNS), D – Sympathetic neural system, E – Spinal cord.

(C) A - Parasympathetic neural system, B - Spinal cord, C - Central nervous system (CNS), D – Sympathetic neural system, E - Peripheral nervous system (PNS).

(D) A - Central nervous system, B - Spinal cord, C - Peripheral nervous system (PNS), D - Sympathetic neural system, E – Parasympathetic neural system.

62. Which of these organism does not show budding?

(A) Yeast (B) *Hydra*

(C) Sponge (D) *Rhizopus*

63. For a given character, a gamete is always

(A) Homozygous (B) Pure

(C) Hybrid (D) Heterozygous

64. False statement about human RBCs is -

(A) RBCs have an average life span of 120 days

(B) RBCs are destroyed in the spleen (graveyard of RBCs)

(C) Mature RBCs are devoid of nucleus in most of the mammals

(D) Mature RBCs are nucleated and possess membrane bound organelle

65. Unit of nervous system is

(A) Neuron (B) Nephron

(C) Mesencephalon (D) Hormones

66. In parthenogenesis

(A) Egg is not formed (B) Only female progeny are produced

(C) Fertilization take place (D) Fertilization does not take place

67. How many types of gametes will be produced by individuals of AABbcc genotype?

(A) Two (B) Four (C) Six (D) Eight

68. Lymph:

(A) Mainly transports oxygen to brain

(B) Mainly transport CO_2 to lungs

(C) Returns interstitial fluid to blood

(D) Returns RBCs and WBCs to lymph nodes

69. Site for processing of vision, hearing, speech, memory, intelligence, emotions and thoughts is:

(A) Brain (B) Ear

(C) Lungs (D) Kidney

70. Sexual reproduction is not characterized by:

(A) Variations in progeny (B) Formation of gametes

(C) Identical progeny (D) Fusion of gametes

71. Which one of the following traits of Garden Pea studied by Mendel, was a recessive feature?

(A) Axial flower position (B) Green seed colour

(C) Green pod colour (D) Round seed shape

72. Select order of toxicity of:

A. Ammonia B. Urea C. Uric acid

(A) C > B > A (B) B > A > C

(C) C > A > B (D) A > B > C

73. In reflex action, pathway of reflex arc is:

(A) Sensory organ → afferent neuron → CNS → Efferent neuron →Effector/motor organ

(B) Afferent neuron → Sensory organ →CNS → Efferent neuron →Effector/motor organ

(C) Sensory organ → afferent neuron → CNS → Effector/motor organ → Efferent neuron

(D) Efferent neuron →Sensory organ → afferent neuron → CNS →Effector/motor organ

74. Sterilization procedure in males is known as:

(A) Tubectomy (B) Vasectomy

(C) Ovariectomy (D) IUCD

75. Colour based characters in seven characters studied by Mendel in Pea were:-

(A) 1 (B) 2

(C) 3 (D) 4

MATHEMATICS

76. Find the remainder when $7^{21} + 7^{22} + 7^{23} + 7^{24}$ is divided by 25:

(A) 0 (B) 2 (C) 4 (D) 6

77. If α, β are the roots of the equation $x^2 - 2x + 3 = 0$. Then the equation whose roots are $P = \alpha^3$ and $Q = \beta^3$ is

(A) $x^2 + 10x + 27 = 0$ (B) $x^2 - 10x - 27 = 0$

(C) $x^2 - 10x + 27 = 0$ (D) $x^2 + 10x - 27 = 0$

78. If twice the age of the father is added to the age of the son, the sum is 82. But if twice the age of the son is added to the age of the father, sum is 56. The age of the father is:

(A) 24 (B) 36

(C) 42 (D) 48

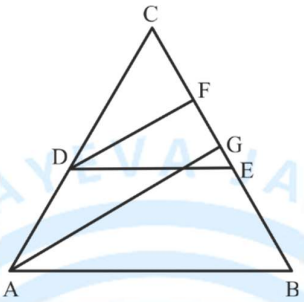
79. If α and β be two roots of the equation $x^2 - 64x + 256 = 0$. Then the value of $\left(\frac{\alpha^3}{\beta^5}\right)^{1/8} + \left(\frac{\beta^3}{\alpha^5}\right)^{1/8}$ is:

(A) 1 (B) 3 (C) 2 (D) 4

80. Which term of the A.P.; –9, –8.25, –7.5, ... is its first positive term?

(A) 12 (B) 13 (C) 14 (D) 15

81. In the figure, $DF \parallel AG, DE \parallel AB, AB = 15, CD = 8, AD = x, DE = 10, FG = y$ and $CG = 6$. The ratio x : y equals to:



(A) 1 : 2 (B) 1 : 3 (C) 2 : 1 (D) 3 : 2

82. The coordinates of mid-points of the sides of a triangle are (1, 1), (2, 3) and (4, 1). The coordinates of the centroid of the triangle are:

(A) $\left(\frac{7}{3}, \frac{5}{3}\right)$ (B) $\left(\frac{14}{3}, \frac{10}{3}\right)$

(C) (3, 3) (D) $\left(\frac{5}{3}, \frac{7}{3}\right)$

83. The value of $\frac{\sin x}{\sec x + \tan x - 1} + \frac{\cos x}{\operatorname{cosec} x + \cot x - 1}$ is:

(A) –1 (B) 0

(C) 1 (D) $\frac{1}{2}$

84. From the top of a cliff 25m high the angle of elevation of a tower is found to be equal to the angle of depression of the foot of the tower. The height of the tower is

(A) 25 (B) 50

(C) 75 (D) 100

85. $4.\overline{12}$ is equivalent to

(A) $\frac{103}{25}$ (B) $\frac{138}{47}$ (C) $\frac{136}{33}$ (D) $\frac{412}{33}$

86. If $x=(5)^{1/3}+2$, then value of $x^3-6x^2+12x-10$ is

(A) 1 (B) –2

(C) –1 (D) 3

87. Solve the equation: $6(2^{x-1})+9(3^{y-1})=25$ and $9(2^x)-6(3^y)=70$

(A) $(x,y)=(-1,3)$ (B) $(x,y)=(2,2)$

(C) $(x,y)=(1,-3)$ (D) $(x,y)=(3,-1)$

88. The value $4+\cfrac{1}{5+\cfrac{1}{4+\cfrac{1}{5+\cfrac{1}{4+.....\infty}}}}$ is:

(A) $2+\frac{4}{\sqrt{5}}\sqrt{30}$ (B) $5+\frac{2}{5}\sqrt{30}$

(C) $4+\frac{4}{\sqrt{5}}\sqrt{30}$ (D) $2+\frac{2}{5}\sqrt{30}$

89. If the p^{th}, q^{th} and r^{th} terms of an AP are a, b, c respectively, then the value of a(q – r) + b(r – p) + c(p – q) is

(A) 2 (B) 1

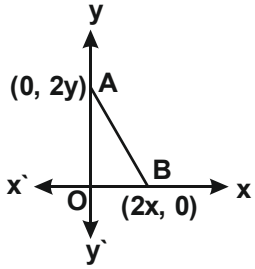
(C) 0 (D) 3

90. In two similar triangles, if the length of one side of a triangle is 1.2 cm and corresponding side of another triangle is 1.4 cm. The ratio of perimeter of these triangles is

(A) 6 : 7 (B) 2 : 1

(C) 4 : 1 (D) 36 : 49

91. The coordinates of the point which is equidistant from the three vertices of the ΔAOB as shown in the figure is:



(A) (x,y) (B) (y,x)

(C) $\left(\frac{x}{2},\frac{y}{2}\right)$ (D) $\left(\frac{y}{2},\frac{x}{2}\right)$

92. If $\cot\theta + \tan\theta = x$ and $\sec\theta - \cos\theta = y$, then the value of $(x^2y)^{2/3} - (xy^2)^{2/3}$ is

(A) –1/2 (B) 0

(C) 1/2 (D) 1

93. A boy is standing on the ground and flying a kite with 120 m of string at an elevation of $30°$. Another boy is standing on the roof of a 14 m high building and is flying his kite at an elevation of $45°$. Both the boys are on opposite sides of both the kites. Find the length of the string that the second boy must have so that the kite meet.

(A) $44\sqrt{2}$ m (B) $45\sqrt{2}$ m

(C) $46\sqrt{2}$ m (D) $47\sqrt{2}$

94. When the polynomial $6x^4 + 8x^3 + 17x^2 + 21x + 7$ is divided by $3x^2 + 4x + 1$, the remainder is $ax + b$, then

(A) a = 1, b = 2 (B) a = 1, b = –2

(C) a = 2, b = 1 (D) a = –1, b = –2

95. The sum of digits of a two-digit number is 8. If 18 is added to the number, the resultant is equal to the number obtained by reversing the digits of the original number. Then the original number is:

(A) 53 (B) 35

(C) 17 (D) 26

*****

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

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