Chandigarh NTSE Stage-1 2018

SCHOLASTIC APTITUTE TEST

Time: 120 Minutes **Maximum Marks: 100**

Instructions to the Candidates

Read the following instructions carefully before you answer the questions:

1. Answer are to be given on a SEPRATE ANSWER SHEET.
2. Please write your twelve digits Roll Number very clearly on the Test-booklet and Answer Sheet as given in your admission card.
3. Please note and follow the instructions given on the answer sheet for writing the answers.
4. Darken the CIRCLE with pen for answering the question in the appropriate space against the number corresponding to the question you are answering.
5. There are 100 question in the test.
6. Since all questions are compulsory, do not try read the whole question paper before beginning to answer it.
7. If you do not know the answer to any question, do not spend much time on it and pass on to the next one. Time permitting, you can come back to the question, which you have left in the first instance and try them again.
8. Since the time allotted for this question paper is very limited you should make the best use of it by not spending too much time on any one question.
9. Rough work can be done anywhere in the booklet but not on Answer sheet/loose paper.
10. Every correct answer will be awarded one mark.
11. Please return the answer sheet to the invigilator after the test.

1. A cell is having tow boundaries, the outer being cell wall and the inner being plasma membrane. The inherent property of this pair moving from outside to inside is:

(1) Semi-permeable and Permeable
(2) Semi-permeable and Semi-permeable
(3) Permeable and Semi-permeable
(4) Permeable and Permeable

2. The process of osmosis is the movement across the cell membrane of :

(1) Salts from a hypotonic solution to hypertonic solution
(2) Salts from a hypertonic solution to hypotonic solution
(3) What from a hypotonic solution to hypertonic solution
(4) Water from a hypertonic solution to hypotonic solution

3. A poorly developed zone in the center of a cell that has DNA molecule is called as:

(1) Nucleolus of prokaryote
(2) Nucleoid of prokaryote
(3) Nucleus of prokaryote
(4) Nucleus of eukaryote

4. In a practical laboratory, a student while observing the slide of tissue with the help of a microscope, found a bunch of cylindrical shaped cells having interconnections belong to the category of:

(1) Adipose tissue
(2) Heart muscle
(3) Smooth muscle
(4) Skeletal muscle

5. Pteridophyte plants can be better described as:

(1) Non vascular, non seed producing
(2) Vascular, non seed producing
(3) Vascular seed producing
(4) Nonvascular seed producing

6. If a potted plant and a dish containing potassium hydroxide are covered by a sealed container made up of glass are kept in sunlight for a week, what will happen:

(1) Plant will grow taller
(2) Leaf turn yellow due to no photosynthesis
(3) Leaf turn green due to excess photosphynthesis
(4) Leaf turn yellow due to no oxygen in the jar

7. Rings of cartilage are present in the throat

(1) To keep the throat erect
(2) To produce the voice
(3) To prevent the air passage from infection
(4) To prevent air passage from collapse

8. The process of excretion involves a sequential arrangement of following organs:

i. Urinary bladder
ii. Kidney
iii. Ureter
iv. Urethra

(1) i, iii, ii, iv
(2) ii, i, iii, iv
(3) ii, iv, iii, i
(4) ii, iii, I, iv

9. The part of a brain concerned with the precise voluntary muscle coordination is:

(1) Cerebrum
(2) Cerebellum
(3) Pons
(4) Medulla oblongata

10. Sex determination in humans is due to the presence of:

(1) Presence of X-chromosome in female
(2) Presence of only Y-chromosome in male
(3) Formation of two types of eggs by female
(4) Formation of two types of sperms by male

11. The arm of humans, leg of horse, leg of a lizard and wing of birds are linked to each other because:

(1) Structures having similar development but different functions
(2) Structures having similar function bud different development
(3) Structures having similar development and similar functions
(4) Structures having different development and different functions

12. In one experiment showing Mendelian inheritance, a tall pea plant with purple flowers was crossed with short pea plant with white flower. All the progeny in the next generation was seen to have purple flowers but half of them were short. What will be the genetic makeup of tall parent:

(1) TTPP
(2) TtPP
(3) TTpp
(4) TtPp

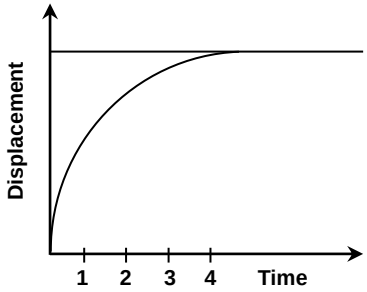
13. A solid cube of silver has a mass of 84g. What is the resistance between the opposite faces. Given that density of silver is 10.5 g/cm3 and resistivity is $1.6 \times 10^{-4}\ \Omega$m.

(1) $0.4 \times 10^{-4}\Omega$
(2) $0.8 \times 10^{-4}\Omega$
(3) $0.4 \times 10^{-8}\ \Omega$
(4) $0.8 \times 10^{-8}\Omega$

14. Farsighted people, who have lost their spectacles, can still read a book by looking through a small (3–4 mm) hole in a sheet of a panel because
(1) Because the fine hole produces an image of the letters at a longer distance.
(2) Because in doing so, the distance of the object is increased.
(3) Because in doing so, the focal length of the eye lens is effectively decreased.
(4) Because in doing so, the focal length of the eye-lens is effectively increased.

15. The equivalent resistance of network of three 2Ω resistors can not be
(1) 0.67 (2) 2 Ω
(3) 3 Ω (4) 6 Ω

16. The displacement of body as a function of time is shown in figure. The figure indicates that



(1) The body starts with a certain velocity, but the motion is retarded and finally the body stops
(2) The velocity of the body is constant throughout
(3) The acceleration of the body is constant throughout
(4) The body starts with a constant velocity, the body moves with another constant velocity

17. A bird is in a wire cage hanging from a spring balance. The reading of the balance is taken when the bird is flying about in the cage, and when the bird is at rest in the cage. The first reading will be
(1) Much greater than the second (2) Greater than the second
(3) Less than the second (4) Same as the second

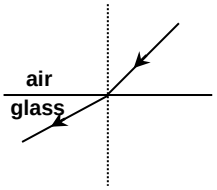
18. A concave mirror is placed on a table with its pole touching the bable. The mirror is rotated about its principle axis in clockwise direction. The image of a person looking straight into it
(1) Rotates in clockwise direction (2) Rotates in anti-clockwise direction
(3) Is inverted (4) Does not rotate

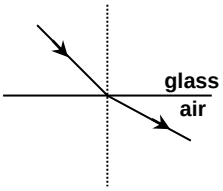
19. A man standing in a swimming pool looks at a stone lying at the bottom. The depth of the swimming pool is h. At what distance from the surface of water is the image of the stone formed? Take μ as refractive index of water.
(1) h (2) μh
(3) $\frac{h}{\mu}$ (4) $\frac{\mu}{h}$

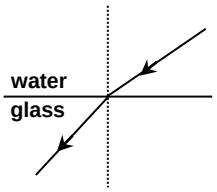
20. "Metal dishes" (Dish Antennas) are used for receiving TV signals from distance communication satellites. These 'Metal Dishes' are
(1) Convex Reflectors (2) both convex and concave reflectors
(3) Concave reflector (4) Convex refractors

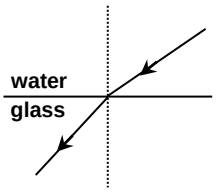
21. Linear magnification (m) Produced by a rear view mirror fitted in vehicles
(1) Is equal to one (2) is infinity
(3) Is more than one (4) Is less than one

22. Which of the following ray diagrams, show the correct refraction of ray of light

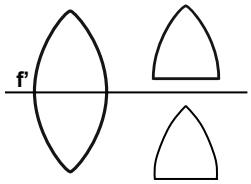
(1) 

(2) 

(3) 

(4) 

23. If a symmetrical convex lens of focal length 'f' is cut into two parts along the principal axis as shows in the figure, the focal length of each part will be

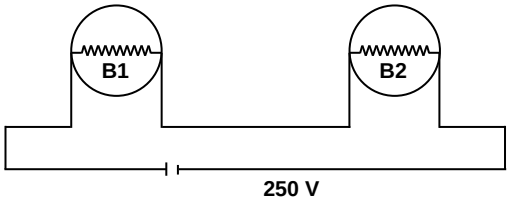


(1) f/2 (2) f/4
(3) f (4) ∞

24. Which statement is true for an eye donor
i. Eye donor can belong to any age group or gender
ii. People who use spectacles can not donate eye
iii. Eye must be removed within 4-6 hours after death
iv. eye removal process takes only 10-15 minutes

(1) i, ii, iii (2) i, iii, iv
(3) i,ii, iv (4) ii, iii, iv

25. Electric bulb B_1 (100W –250V) and electric bulb B_2 (100 W –200V) are connected across source of 250v as shown in figure what is the potential drop across electric bulb B_2?



(1) 200V (2) 250V
(3) 98V (4) 48V

26. A beam of alpha particles moving towards east is deflected towards south by magnetic field. The direction of magnetic field is
(1) towards south (2) towards east
(3) downward (4) upward

27. What is the formula for ferric Oxide?
(1) Fe O (2) $Fe\ O_3$
(3) $Fe_3\ O_4$ (4) Fe_2O

28. In the presence of concentrated H_2SO_4 acetic acid reacts with ethyl alcohol to produce
(1) Aldehyde (2) Carboxylic Acid
(3) Sulphur Dioxide (4) Ester

29. Which of the following is also known as laughing gas?
(1) Methyl isocyanate (2) Sulphur Dioxide
(3) Nitrous Oxide (4) Methyl phosphate

30. The ion of an element has 3 positive charge, 27 mass number and 14 neutrons. Find the number of electrons in this ion.
(1) 13 (2) 10
(3) 14 (4) 16

31. The of the following is responsible for the blackening of silver jewellery on prolonged exposure to air?
(1) Ag_3N (2) Ag_2O
(3) Ag_2S and Ag_3N (4) Ag_2S

32. A metal is strongly heated in the presence of air to form a black mass. The metal is ……..
(1) Copper (2) Potassium
(3) Silver (4) Zinc

33. Which of these shows Tyndall effect?
(1) Common Salt Solution (2) Lemon Juice
(3) Milk (4) Copper Sulphate Solution

34. Which substance is chemically resistant and can hold aqua regia?
(1) Ceramics (2) Glass
(3) Plastic (4) Fibre

35. What mass of Oxygen is required to react completely with 15g of Hydrogen gas to form water?
(1) 120g (2) 107.5g
(3) 132.5g (4) 112g

36. On which of the following substance will you pour Hydrochloric acid if you wish to prepare carbon dioxide gas in laboratory?
(1) Zinc particles (2) Copper sulphate particle
(3) Pieces of marbles (4) Ammonium chloride

37. Solder is an alloy of_____
(1) Copper and Mercury (2) Copper and lead
(3) Lead and Mercury (4) Lead the Tin

38. What is the formula of propanal?
(1) CH_3CH_2CHO (2) $CH_3CH_2CH_2CHO$
(3) CH_3COCH_2 (4) $CH_3CH_2CO\ CH_2$

39. Shweta went for a journey by train in June 2018. Her train was to depart at 7 am. Her mother packed 'Bread Pakedas' For her lunch. However Sheweta did not eat them till evening. In the evening when she opened her lunch box, she felt an unpleasant smell. The taste of Pakods was also sour. This happened due to _____
(1) Thermal Decomposition (2) Calcinations
(3) Isomerism (4) Rancidity

40. Which of the following elements will be in Group 16 of periodic table?

Symbol	Atomic Number
Te	52
Re	75
Se	34
Xe	54

(1) Te and Xe (2) Se and Te
(3) Re and Se (4) Te and Re

41. Who wrote the 'Two Treatises of Government'?
(1) Jean Jacques Rousseau (2) John locke
(3) Montesquieu (4) Louis XVI

42. Louis Blanc wanted to encourage cooperatives and replace capital enterprises, Name the country to which he belong?
(1) Russia (2) Germany
(3) France (4) Italy

43. Name the economist who had once advised Hitler against, in vesting in rearmament
(1) Pastor Niemoeller (2) Hjalmar Schacht
(3) Ernst Hiemer (4) Erna Kranz

44. Who was the first Inspector General of Forests appointed by the British in India?
(1) George Yule (2) Verrier Elwin
(3) Dietrich Brandis (4) H.S. Gibson

45. 'Chapkan' means
(1) a long buttoned coat (2) a type of turban
(3) a western three piece suit (4) phenta (hat)

46. Who introduced opium into china in the early sixteenth century?
(1) Britishers (2) Japanese
(3) Russians (4) Portuguese

47. Who was the Austrian chancellor when Congress of Vienna (1815) was held?
(1) Giuseppe Mazzini (2) Duke Metternich
(3) Giuseppe Garibaldi (4) Otto Von Bismarck

48. Name the two imperialist, countries against, which the nationalist Vietnamese fought?
(1) France and Britain (2) Britain and Japan
(3) Japan and France (4) France and Germany

49. Who Formed the Swaraj Party?
(1) Jawahar lal Nehru and Mahatma Gandhi
(2) Jawaharlal Nehru and Subhash Chandra Bose
(3) Jawaharlal Nehru and Motilal Nehru
(4) Motilal Nehru and C.R. Dass

50. Which two new colonial powers joined European powers in the process of carving up of Africa between themselves at, Berlin in 1885?
(1) Britiain and France
(2) Italy and France
(3) Belgium and Germany
(4) Britain and Italy

51. What, does proto-industrialisation mean?
(1) The first, and early form of industrialisation
(2) Industrialisation after 1800 C.E.
(3) Industrialisation after 1900 C.E.
(4) Industrialisation after 2000 C.E.

52. Who among the following authored 'Godan'?
(1) Rabindranath Tagore
(2) Prem Chand
(3) Bankim Chandra
(4) Srinivas Das

53. In which country women do not have the right to vote.
(1) Estonia
(2) Saudi
(3) Fiji
(4) Mexico

54. The name of the autobiography written by Nelson Mandela is
(1) Robben Island
(2) The long walk to Freedom
(3) Blacks
(4) Aparthied

55. Who appoints the judges of the supreme court and the high Court.
(1) The president
(2) The prime Minister
(3) The Chief justice of the Supreme Court
(4) The president on the advice of the Prime Minister ad is consultation with the Chief Justice of the Supreme Court

56. Kosovo was a province of _____before its split
(1) Vietnam
(2) Zimbabwe
(3) Sri Lanka
(4) Yugoslavia

57. Which language was recognised as the official language after independence in Sri Lanka?
(1) Tamil
(2) Hindi
(3) Sinhali
(4) Telgu

58. Which country does not have federal system?
(1) Belgium
(2) India
(3) Myanmar
(4) The United States of America

59. The _____ legislates on residuary subjects
(1) Union Government
(2) State Government
(3) Local Government
(4) President

60. Which on the following regional parties is associated with west Bengal?
(1) Lok Jan Shakti Party
(2) Janata Dal
(3) Forward Bloc
(4) Democratic Front

61. Which of the following statement is true
(1) Elnino is a Greek word meaning the child
(2) Presence of the Eln Nino leads to decrease in Sea-surfer temperatures
(3) El Nino is a name given to the periodic development of warm ocean current along the coast of Peru
(4) I TCZ is a broad trough of high pressure in equatorial latitudes

62. Maldives Island are situated to the _____ of Lakshdweep Island
(1) South
(2) North
(3) East
(4) West

63. Which of the following not a nuclear power station.
(1) Kaiga
(2) Narora
(3) Korba
(4) Kakrapar

64. What causes rainfall on the coastal areas of Tamil Nadu in the beginning of winters
(1) South West monsoon
(2) Temperate cyclones
(3) North East monsoon
(4) Local Air circulation

65. Which of the following two extreme locations are connecting the east west corridor
(1) Munbai and Nagur
(2) Ahmdabad and Kolkatta
(3) Silchar and Porbandar
(4) Nagpur and Siliguri

66. Match list 2 (River) and list 2 (Dam) and select the correct answer using the code given below

List 1 (River)	**List 2(Dam)**
A. Narmada	i. Hirakud
B. Kaveri	ii. Indira sagar Dam
C. Bhigirathi	iii. Mettur
D. mahanadi	iv. Tehri

(1) A (i) B (iii) C (iv) D (ii)
(2) A (iv) B (iii) C (ii) D (i)
(3) A (ii) B (iii) C (iv) D (i)
(4) A (iv) B (ii) C (i) D (iii)

67. The Red soil develop a reddish colour due to
(1) Deforstation and over grazing
(2) The presence of potash and Magnesium
(3) Diffusion of iron in Crystalline and metamorphic rocks
(4) Formation form the lave flows

68. The longitudinal extent of India is:
(1) $69^0$7' E to 37^0 25'E
(2) $68^0$7' E to 98^0 25'E
(3) $68^0$7' E to 97^0 25'E
(4) $68^0$7' E to 99^0 25'E

69. The___ is a longitudinal position of a place where the local time 12 Noon when it is 7:30 pm at Green which
(1) 113.5ºW
(2) 112.5ºE
(3) 112.5ºW
(4) 113.5ºE

70. Nokrek Bio Reserve is situated in _____state of India.
(1) Assam
(2) West Bengal
(3) Meghalaya
(4) Sikkim

71. Boundaries of which of the states does not touch Myanmar?
(1) Mizoram
(2) Meghalaya
(3) Manipur
(4) Nagaland

72. Arrange these hills from west to east
A. Khasi
B. Garo
C. Naga
D. Jaintia
(1) C, A, B, D
(2) D, B, A, C
(3) A, B, C, D
(4) B, A, D, C

73. National consumer day is celebrated on
(1) 24th March
(2) 24th December
(3) 24th September
(4) 24th November

74. Money in hand is an example of _____
(1) Human capital
(2) Fixed capital
(3) Working capital
(4) Physical capital

75. Non market activity is _____
(1) Selling the product near by temple
(2) Selling the products through the regulated market
(3) Producing for self consumption
(4) State of unemployment

76. Calculate the female literacy rate from the given data

Gender	Total Person	Literate Person
Males	1200	1050
Females	580	360
Total	1780	1410

(1) 62.0%
(2) 25.6%
(3) 25.8%
(4) 20.22%

77. The Quality of Education in a country does not depend upon
(1) Literacy Rate
(2) Growth Rate
(3) Health Status
(4) Acquisition of skills by people

78. Which one of the following agency issue one rupee currency note in India
(1) Reserve bank of India (2) Ministry of Finance
(3) Commerce Ministry (4) Commercial Bank

79. In which year the first five year plan started
(1) 1947 (2) 1951
(3) 1948 (4) 1950

80. Removing barriers of restriction set by the government is called
(1) Liberalization (2) Investment
(3) Favorable trade (4) Free trade

81. Solve:
$\sqrt{\frac{1+\sin A}{1-\sin A}}+\sqrt{\frac{1-\sin A}{1+\sin A}}=?$
(1) cos 2A (2) 2 sec A
(3) 2 tan A (4) 2 sin A

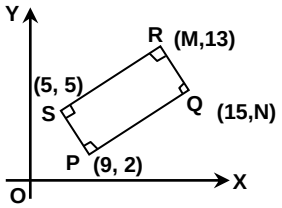
82. $\frac{1}{2(3x+4y)}+\frac{12}{7(4x-3y)}=\frac{1}{2}$. Find the values of x and y if 3x + 4y $\neq$ O, 4x 3y $\neq$ 0
(1) $x=\frac{444}{25}, y=\frac{16}{25}$ (2) x = 0, y = 1
(3) $x=\frac{16}{25}, y=\frac{256}{25}$ (4) x = 2, y = 2

83. A gardener wants to grow some plants in a garden. If 4 plants are grown extra in each row, the number of rows will reduce by 2. If 4 plants are grown less in each row, the number of rows increases by 4. Find the total number of plants grown.
(1) 90 (2) 100
(3) 108 (4) 96

84. The sum of all sides of a cube is 9 cm. the volume of the cube is……
(1) $\frac{3}{4}cm^3$ (2) $\frac{81}{108}cm^3$
(3) $\frac{27}{64}cm^3$ (4) $\frac{27}{32}cm^3$

85. If x:y = 3:5 and x:2 = 5:7, then what is (y-z): (y+z) equal to?
(1) 2/23 (2) 27/46
(3) 18/46 (4) 15/46

86. Find the value of m-n in the rectangle PQRS.



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

87. A pair of equation x = m and y = n graphically represent lines which are…….
(1) intersecting at (n, m) (2) coincident
(3) parallel (4) intersecting at (m, n)

88. If x = 1 + cos A, y = $cosec^2A$, z = 1 – cos A, then the value of (xy) z is……..
(1) cosec A (2) 1
(3) 1 $cosec^2A$ (4) cos^2A

89. The mode of the given series is 36. Find the value of K.

Class interval	0 – 10	10 – 20	20 – 30	30 – 40	40 – 50	50 – 60	60 – 70
Frequency	7	6	K	16	12	8	10

(1) 10 (2) 15
(3) 20 (4) 30

90. If x + y + 2 = 0 and $x \neq 0$, $y \neq 0$, $z \neq 0$, then find the value of $\frac{x^2}{yzxy} + \frac{y^2}{xz} + \frac{z^2}{xy}$

(1) 0 (2) 1
(3) 2 (4) 3

91. What will be the area of the largest triangle that can be inscribed in a semicircle of radius $\frac{'r'}{16}$

(1) $16\ r^2$ (2) $\frac{r^2}{64}$
(3) $\frac{r^2}{32}$ (4) $\frac{r^2}{256}$

92. From a face of a cubical wooden block, a hemispherical depression is cut in such a way that the diameter of hemisphere is half the edge of the cube. What will be the surface area of remaining solid?

(1) $\frac{l^2\left(l^2+4\right)}{2}$ (2) $64l^2$
(3) $\frac{1}{4}l^2\left(\pi+24\right)$ (4) $\frac{1}{16}l^2\left(\pi+96\right)$

93. *Rahim* sells apples to his customers at the cost price itself but uses a weight of 800 g instead of 1kg weight. Find his profit%

(1) 25% (2) 20%
(3) 15% (4) 30%

94. If $x+\frac{1}{x}=5$, then find the value of $x^9+\frac{1}{x^9}$

(1) 1330690 (2) 1310330
(3) 1330670 (4) 1310370

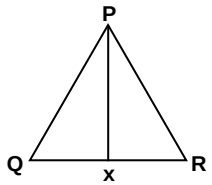
95. If a natural number 'a' is divided by 7, the remainder is 5. If a natural number 'b' is divided by 7, the remainder is 3. The remainder is 'r' if a + b is divided by 7. Find the value of $\frac{3r+5}{4}$

(1) 7 (2) 2
(3) 8 (4) 11

96. Rajat's salary in 2017 is Rs. 1,77,100. His salary from 2014 has risen annually by 10, 15 and 40 per cent respectively to reach 2017 salary figures. What was his salary in 2014?

(1) Rs. 95,000 (2) Rs. 1,15,000
(3) Rs. 1,20,000 (4) Rs. 1,00,000

97. In ΔPQR, $PX \perp QR$. Find the value of $PQ^2 + QR^2 - 2QR.QX$

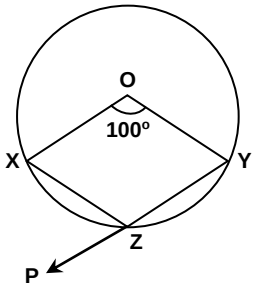


(1) PR^2 (2) $2PQ^2$
(3) $QR.QX^2$ (4) $2PR^2 + PQ^2$

98. The points P (0, 4), Q(-3, 1) R (0, -2) and S(3, 1) are the vertices of a

(1) Parallelogram (2) Square
(3) Kite (4) Rhombus

99. O is the centre of a circle and $\angle xoy = 100^o$. Find the measure of $\angle xzp$



(1) 50^o (2) 100^o
(3) 150^o (4) 80^o

100. In trapezium PQRS, PQ11RS and PQ = 2RS. If PR and QS intersect at point O, what will be the ratio of areas of ΔPOQ and ΔROS?

(1) 1:1 (2) 2:1
(3) 4:1 (4) 1:2

ANSWERS

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