

A Specially Designed Initiative
to Encourage Young Talent by



TALLENTEX 2018 : (08, October 2017)

PAPER CODE

0

TALLENTEX 2018
ALLEN'S Talent Encouragement Exam

CLASS - 9th (IX)

Duration: 2 Hrs. | Maximum Marks : 320

Answer Sheet No.

T 6

Tallentex Roll No.

6

Please read the instructions carefully. You are allotted 5 minutes specifically for this purpose.

Things NOT ALLOWED in EXAM HALL : Blank Paper, clipboard, log table, slide rule, calculator, camera, mobile and any electronic or electrical gadget. If you are carrying any of these, then keep them at a place specified by invigilator at your own responsibility.

INSTRUCTIONS

1. This Booklet is your Question Paper. DO NOT break seal of Booklet until the invigilator instructs to do so.
2. Fill your TALLENTEx Roll No. & Answer Sheet No. in the space provided on the cover page.
3. Carefully fill your **PAPER CODE** and present **CLASS** in space provided (**Serial No. 6 & 12**) of optical response sheet.
4. Please make sure that paper you received is of your class only.
5. Please make sure that the **Paper Code** Printed on the **Test Booklet Cover Page** and **Inner Pages** are the same. In case of discrepancy, the candidate should immediately report the matter to the Invigilator for replacement of Test Booklet.
6. The Answer Sheet is provided to you separately which is a machine readable Optical Response Sheet (ORS). You have to mark your answers in the ORS by darkening bubble, as per your answer choice, by using black or blue ball point pen.
7. After breaking the Question Paper seal, check there are **12 pages** in the booklet. This Question Paper contains 80 MCQs with 4 choices (Subjects: Physics: 15, Chemistry: 15, Biology: 15, Maths: 15 & Mental ability: 20).
8. Think wisely before darkening bubble as **there is negative marking for wrong answer**. Answer once marked by pen cannot be cancelled.
9. Marking Scheme:
 - a. If darkened bubble is RIGHT answer : 4 Marks.
 - b. If darkened bubble is WRONG answer : -1 Mark (Minus One Mark).
 - c. If no bubble is darkened in any question: No Mark.
10. If you are found involved in cheating or disturbing others, then your ORS will be cancelled.
11. Do not put any stain on ORS and hand it over back properly to the invigilator.
12. You can take along the question paper after the test is over.

SECTION - A : PHYSICS

This section contains **15 Multiple Choice Questions**. Each question has four choices (1), (2), (3) and (4) out of which **ONLY ONE** is correct.

1. In which of the following lists are the units in order from LONGEST to SHORTEST ?
(1) light-year, kilometer, astronomical unit (2) astronomical unit, kilometer, light-year
(3) kilometer, light-year, astronomical unit (4) light-year, astronomical unit, kilometer
2. An object is dropped from the top of a tower. The distance it covers in the last second is seven times the distance it covered in the first second. Find the time of flight.
(1) 2 sec (2) 3 sec (3) 4 sec (4) 5 sec
3. Which of the following statement is true for reflection ?
(1) The angle of incidence is twice the angle of reflection.
(2) The incident ray, the reflected ray and the normal drawn at the point of incidence lie in the same plane.
(3) Some type of virtual images can be formed on screen.
(4) A plane mirror always forms real image.
4. Force of 5 N acts on a body of weight 9.8 N. What is the acceleration produced in ms^{-2} ?
(1) 49 (2) 5 (3) 1.46 (4) 0.51
5. A particle travels 10 m in first 5 seconds and 10 m in next 3 seconds. Assuming constant acceleration, what is the distance travelled in next 2 seconds ?
(1) 8.3 m (2) 9.3 m (3) 10.3 m (4) None of these
6. A big explosion on the moon cannot be heard on the earth because :
(1) the explosion produces high frequency sound waves which are inaudible.
(2) sound waves require material medium for propagation.
(3) sound waves are absorbed in atmosphere of moon.
(4) sound waves are absorbed in earth's atmosphere.
7. **Statement – 1** : A person feels weightlessness in an artificial satellite of the Earth. However a person on the Moon (natural satellite) feels his weight.

and

Statement – 2 : Artificial satellite is a freely falling body and on the Moon surface, the weight is mainly due to Moon's gravitational attraction.
(1) Statement–1 is True, Statement–2 is True ; Statement–2 is a correct explanation for Statement–1
(2) Statement–1 is True, Statement–2 is True ; Statement–2 is not a correct explanation for Statement–1
(3) Statement–1 is True, Statement–2 is False.
(4) Statement–1 is False, Statement–2 is True.
8. Mercury, venus, earth and mars are also called :
(1) Inner planets (2) Terrestrial planets
(3) Outer planets (4) Both (1) and (2) are correct
9. Which one of the following statements concerning waves is FALSE? All waves
(1) propagate energy from one point to another point.
(2) can be reflected
(3) require a medium in order to be propagated.
(4) can experience a change in direction if they enter a new medium

20. A possible environmental impact from acid rain is :
 (1) a increase in soil pH. (2) a increase in the amount of H^{\oplus} ions in soil.
 (3) plants defoliate. (4) an earthquake.
21. A pool of water evaporates. As molecules escape, the temperature of the water left in the pool changes. From where do the molecules escape and what is the effect on the temperature of the water in the pool?

	Molecules escape from	Temperaturej of water in the pool
A	All parts of the liquid	Decreases
B	All parts of the liquid	Increases
C	Only the liquid surface	Decreases
D	Only the liquid surface	Increases

- (1) A (2) B (3) C (4) D
22. Which one among the following denotes the smallest teperature ?
 (1) 1° on the celsius scale. (2) 1° on the kelvin scale.
 (3) 1° on the Fahrenheit scale. (4) Both 2 and 3
23. Boot polish contain
 (1) liquid dispersed phase in solid dispersion medium
 (2) liquid dispersed phase in liquid dispersion medium
 (3) solid dispersed phase in liquid dispersion medium
 (4) gas dispersed phase in liquid dispersion medium
24. 5 gm of a solute is dissolved in 25 gm of water to form a saturated solution at 298K. What is the solubility of the solute at this temperature.
 (1) 20g (2) 12g (3) 5g (4) 7g
25. The burning of phosphorus in air is an example of :-
 (1) rapid combustion (2) spontaneous combustion
 (3) explosion (4) all of these
26. Thermometer (A) & (B) have ice points marked at $15^{\circ}C$ & $25^{\circ}C$ and steam points at $75^{\circ}C$ & $125^{\circ}C$ respectively. When thermometer A measures the temperature of a bath as $60^{\circ}C$ the reading of B for the same bath is :
 (1) $60^{\circ}C$ (2) $75^{\circ}C$ (3) $90^{\circ}C$ (4) $100^{\circ}C$
27. We wrap blanket around a person who caught fire
 (1) because Person feels cold
 (2) because the fire stops getting the oxygen in required amount for combustion.
 (3) because blanket is warm.
 (4) both (1) and (2)
28. Refining of petroleum (Crude oil) is done by "fractional distillation" by which different components of petroleum such as petrol, deisel, kerosene, paraffin wax etc are separated. Principle of fraction distillation is :
 (1) Different components of petroleum have different densities.
 (2) Different components of petroleum have different boiling points.
 (3) Components of petroleum have different melting points.
 (4) Both (2) and (3)

29. When gases are allowed to expand, suddenly they :
 (1) heat up (2) collapse (3) react (4) cool
30. Which one of the following does not involve coagulation ?
 (1) Peptization (2) Formation of delta regions
 (3) Treatment of drinking water by potash alum (4) Clotting of blood by the use of FeCl_3

SECTION-C : BIOLOGY

This section contains **15 Multiple Choice Questions**. Each question has four choices (1), (2), (3) and (4) out of which **ONLY ONE** is correct.

31. The tools shown below are used for which of the following purposes in the field.



(A)

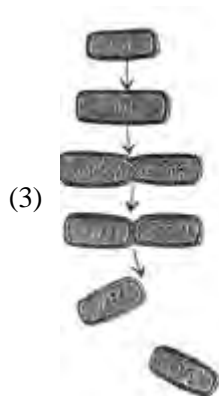
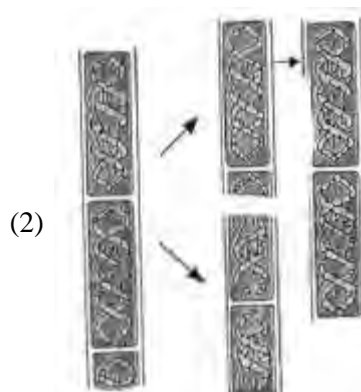
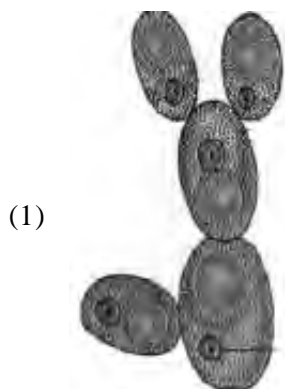


(B)



- (1) A-Ploughing and B-Sowing (2) A- Levelling and B- Ploughing
 (3) A-Weeding and B-Levelling (4) A- Ploughing and B-Winnowing
32. Select a correct match–
 (1) Snow leopard – Kanha National Park (2) Tiger – Kanchenjunga National Park
 (3) Lion – Gir National Park (4) Rhinoceros – Simlipal sanctuary
33. (a) I am found in the upper part of the ear and the tip of the nose.
 (b) I am flexible but do not break easily
 (c) My main function is to give shape and support to the body parts
 Who am I?
 (1) Joint (2) Bone (3) Muscle (4) Cartilage
34. How many statements are correct?
 (a) Cell wall is characteristic feature of plants
 (b) Synthesis of food in green plants takes place in chloroplast
 (c) Smallest cell is of PPLO
 (1) One (2) Two (3) None of these (4) All of these
35. Choose the option which is not correct in respect to plants and their hybrids–
- | Plant | Hybrid |
|------------|----------|
| (1) Wheat | Sonalika |
| (2) Cotton | HB-3 |
| (3) Rice | IR8 |
| (4) Maize | Amber |
36. Farmers often use the technique of 'selective breeding' in order to obtain cows that give high yields of milk. Which of the following describes this technique?
 Cows that produce a lot of milk are _____.
 (1) chosen to be milked
 (2) allowed to produce offspring
 (3) put on a special diet to produce good quality milk
 (4) kept separately from the cows that are not producing good quality milk

37. Birds which are reared for eggs are called:
 (1) Fries (2) Broilers (3) Layers (4) Turkeys
38. Budding is seen in which of the following figure



39. Four different types of animal tissues are given below, which one of these is correctly matched with its location and function?

Tissue	Location	Function
(1) Glandular epithelium	Intestine	Secretion
(2) Collagen fibres	Cartilage	Attach skeletal muscles to bone
(3) Smooth muscle fibres	Heart	Heart contraction
(4) Columnar epithelium	Nephron	Secretion & absorption

40. Select the incorrect match.

A	B
(1) Insecticide	DDT
(2) Fungicide	Bordeaux Mixture
(3) Biofertilizer	Carps
(4) Nitrogenous fertilizer	Urea

41. A girl has menstruation on the 6th day of the month. when is ovulation most likely to occur?
 (1) 15th - 17th day (2) 18th - 20th day (3) 23rd - 25th day (4) 27th - 28th day
42. Which of the following functions are not performed by micro organisms?
 (1) Preparation of antibiotics
 (2) Nitrogen fixation
 (3) Decomposition of dead and decaying organic material
 (4) Formation of fruits

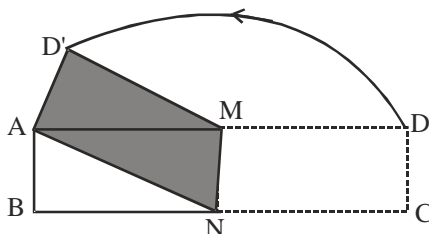
43. Basement membrane is made up of :
- (1) epidermal cell only (2) endodermal cell
 (3) cell product of epithelial cell (4) both 1 and 2
44. In a Golgi body, the maturing face is :
- (1) convex and pointing towards plasma membrane
 (2) convex and pointing towards ER
 (3) concave and pointing towards plasma membrane
 (4) concave and pointing towards ER
45. A cell has the following molecules and structures: enzymes, DNA, ribosomes, plasma membrane, and mitochondria. It could be a cell from
- (1) a bacterium (2) an animal, but not a plant
 (3) a plant, but not an animal (4) a plant or an animal

SECTION-D : MATHEMATICS

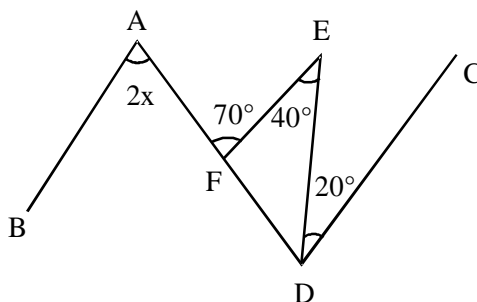
This section contains **15 Multiple Choice Questions**. Each question has four choices (1), (2), (3) and (4) out of which **ONLY ONE** is correct.

46. If $x = \sqrt{2}$, $y = 0.\overline{13}$, then x and y are _____, _____ numbers respectively.
- (1) Integer, Rational (2) Irrational, Rational
 (3) Rational, Irrational (4) Natural, Rational
47. If $6x - x^2 = 1$, then the value of $\left(\sqrt{x} - \frac{1}{\sqrt{x}}\right)$ is
- (1) 2 (2) 3 (3) 1 (4) -1
48. The value of $(-3)^{4 \times 5 - 16}$ is
- (1) 9 (2) 27 (3) 81 (4) None of these
49. One of the factors of $x^4 + 2x^2 + 9$ is
- (1) $x^2 + 3$ (2) $x + 1$ (3) $x^2 - 2x + 3$ (4) None of these
50. Find the smallest number by which 5400 should be multiplied so that the product is a perfect cube. The following are the steps involved in solving the above problem. Arrange them in sequential order.
- (A) $5400 = 2^3 \times 3^3 \times 5^2$
 (B) On prime factorisation of 5400, we get $5400 = 2 \times 2 \times 2 \times 5 \times 5 \times 3 \times 3 \times 3$
 (C) 5400 must be multiplied by 5 so that the product is a perfect cube.
 (D) In the prime factorisation of 5400, we observe that 5 has not appeared n times, where n is a multiple of 3.
- (1) BACD (2) BADC (3) BDAC (4) ABDC
51. If A, B, C, D and E are five prime numbers, sum of these five prime numbers = 266. It is given that $A < B < C < D < E$, the value of A^5 is
- (1) 243 (2) 32 (3) 3125 (4) Can't determined
52. If $p(x) = ax^5 + bx^3 + cx - 7$, where a, b, c are constants. If $p(-5) = 5$, then $p(5)$ equal to
- (1) -5 (2) -14 (3) +14 (4) -19

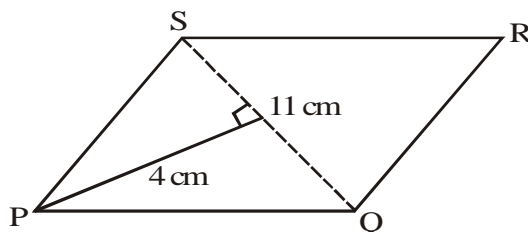
53. The value of x satisfying $28\sqrt{x} + 1426 = \frac{3}{4}(2872)$
 (1) 676 (2) 26 (3) 400 (4) 576
54. A rectangular piece of paper ABCD measuring 4 cm \times 16 cm is folded along the line MN so that vertex C coincides with vertex A, as shown in the picture. What is the area of the pentagon ABNMD' ?



- (1) 17 cm² (2) 27 cm² (3) 37 cm² (4) 47 cm²
55. In the given figure AB \parallel CD, then x is equal to



- (1) 50° (2) 40° (3) 70° (4) 25°
56. What is the sum of all interior angle of a hexagon.
 (1) 360° (2) 540° (3) 720° (4) None of these
57. The sum of the digits of a two digit number is 15. The number obtained by interchanging the digits is 27 more than the given number. Find the original number.
 (1) 78 (2) 87 (3) 96 (4) 69
58. If 80% of y is 480, then the value of y is
 (1) 400 (2) 600 (3) 500 (4) 700
59. The figure PQRS is a quadrilateral in which $PQ = RS$ and $RQ = PS$. Its area is



- (1) 44 cm² (2) 48 cm² (3) 22 cm² (4) 24 cm²
60. Factorize: $9x^2 - 49y^2 + 3x + 7y$
 (1) $(3x+7y)(3x-7y)$ (2) $(3x+7y)(3x-7y-1)$
 (3) $(3x+7y)(3x-7y+1)$ (4) $(3x-7y)(3x-7y+1)$

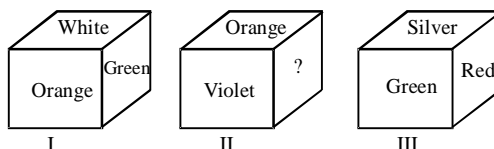
SECTION-E : MENTAL ABILITY

This section contains **20 Multiple Choice Questions**. Each question has four choices (1), (2), (3) and (4) out of which **ONLY ONE** is correct.

Directions (61 & 62) : A bus started from football stadium and drove 2 km towards East to reach the hostel.

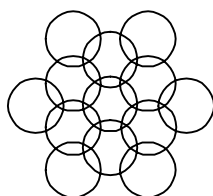
From hostel bus turned right and drove 4 km to reach the cricket stadium. From there it drove 2 km to left to reach the school.

- 61. How far did the bus travel from the school to the football stadium?
(1) 10 kms (2) 8 kms (3) 6 kms (4) 4 kms
- 62. Which direction is the school with reference to the football stadium?
(1) South-East (2) North-East
(3) South-West (4) North-West
- 63. If in certain code language 'IPL' is written as '81256144', then how will 'BUT' be written in that language?
(1) 4441400 (2) 4444100
(3) 4100444 (4) 4144400
- 64. In a queue of children, Kashish is fifth from the left and Mona is sixth from the right. When they interchange their places among themselves, Kashish becomes thirteenth from the left. Then, what will be Mona's position from the right ?
(1) 4th (2) 8th (3) 14th (4) 15th
- 65. From the given four positions of a single dice, find the colour at the place of ?



- (1) Green (2) Red (3) Silver (4) White

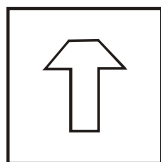
- 66. Find the total number of circles in the figure given below.



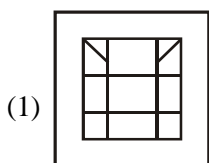
- (1) 10 (2) 11 (3) 12 (4) 13

- 67. In certain code language, 'Tom Kun Sud' means 'Dogs are barking'; 'Kun Jo Mop' means 'Dogs and Horses' and 'Mut Tom Ko' means 'Donkeys are mad'. Which word in that language means 'barking' ?
(1) Sud (2) Kun (3) Jo (4) Tom

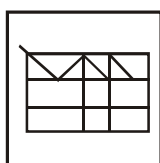
68. In the following question, you are given a fig. (X) followed by four alternative figures (1), (2), (3) and (4) such that fig. (X) is embedded in one of them. Trace out the alternative figure which contains fig. (X) as its part.



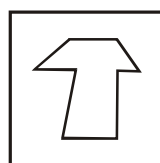
(X)



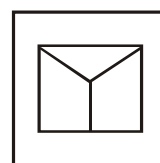
(1)



(2)



(3)



(4)

69. What comes in place of question mark in following series.

DF, GJ, KM, NQ, RT, ?

(1) UX

(2) UW

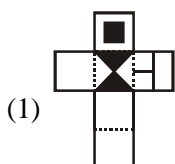
(3) YZ

(4) XZ

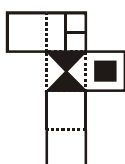
70. Choose the answer figure which most closely resembles the unfolded dice of figure (X).



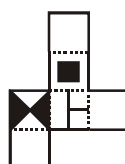
(X)



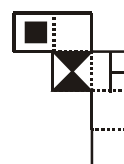
(1)



(2)



(3)



(4)

71. Which interchange of signs will make the following equation correct?

$$(16 - 4) \times 6 \div 2 + 8 = 30$$

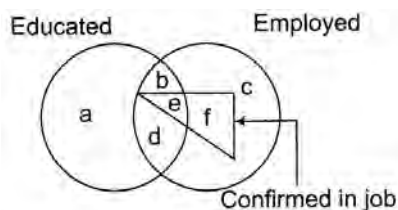
(1) \div and $-$

(2) $+$ and \times

(3) $-$ and $+$

(4) \div and $+$

72. Read the following diagram and find the region representing persons who are educated and employed but not confirmed.



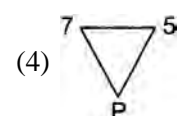
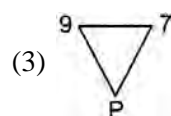
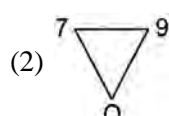
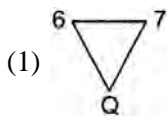
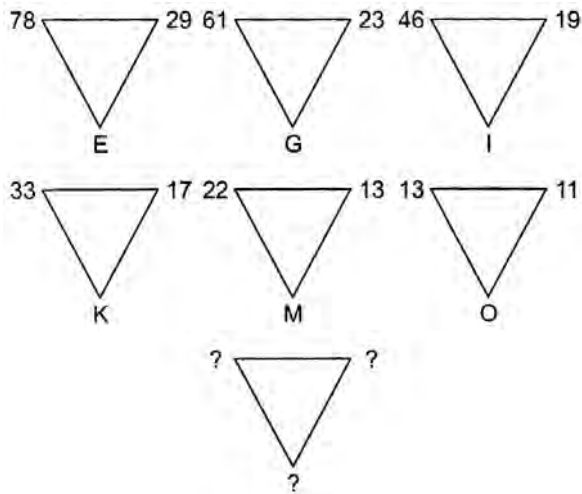
(1) a, c

(2) a, b, c

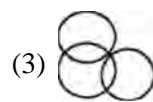
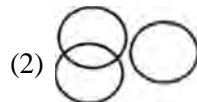
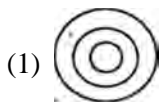
(3) b, d

(4) a, d, c

73. In the following question, which number when placed at the sign of interrogation shall complete the given pattern.



74. Which one of the following four logical diagrams represents correctly the relationship between : Musicians, Instrumentalists, Violinists ?

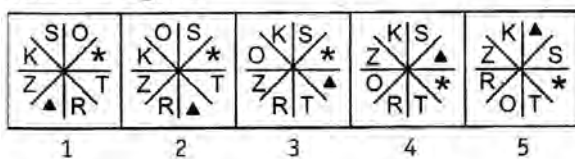


75. A's mother is sister of B and daughter of C. D is the daughter of B and sister of E. How is C related to E?

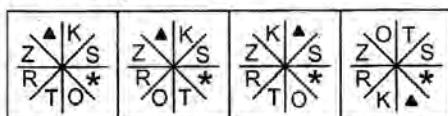
- (1) Sister (2) Mother
(3) Father (4) Grandmother or grandfather

76. In the following question, which one of the four answer figures should come after the question figures on the right, if the sequence were continued.

Question Figures



Answer Figures



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

77. Looking at a photograph, a person said, "I have no brother or sister but that man's father is my father's son". At whose photograph was the person looking at?

- (1) His son's (2) His nephew's (3) His father's (4) His own

78. Find the mirror image of the given word

DL3N469F320X

(1) DL3N469F320X

(2) X028F994N3LD

(3) X028F994N3LD

(4) DL3N469F320X

79. Insert the missing number in the given series :

0, 4, 18, 48, ?, 180

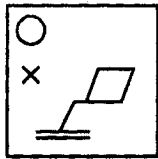
(1) 58

(2) 68

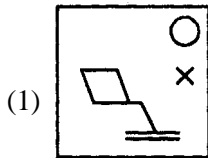
(3) 84

(4) 100

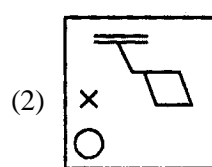
80. Find the water image of the object given in the question figure (X) out of the figures given in the answer figures (1), (2), (3) and (4).



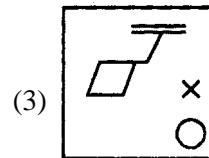
(X)



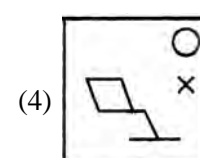
(1)



(2)



(3)



(4)

SPACE FOR ROUGH WORK

ANSWER KEY : 08-10-2017					CLASS – IX					CODE : O					
Q.No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Ans.	4	3	2	2	1	2	1	4	3	4	3	1	1	3	3
Q.No.	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Ans.	3	4	3	2	2	3	2	1	1	2	4	2	2	4	1
Q.No.	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45
Ans.	3	3	4	4	2	2	3	1	1	3	2	4	3	3	4
Q.No.	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
Ans.	2	1	3	3	2	2	4	1	4	4	3	4	2	1	3
Q.No.	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75
Ans.	2	1	1	3	2	4	1	2	1	2	1	3	1	1	4
Q.No.	76	77	78	79	80										
Ans.	1	1	2	4	2										