SAMPLE PAPER

SET

(Spectrum Entrance Test)

for Students Presently in Class 10th

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SAMPLE PAPER

PAPER CODE : A

NAME : _____ **Reg. No. :** _____

Class: **X** ***Date:***
Time: **2 Hours (11:00 AM to 1:00 PM)** ***Max. Marks:*** **270**

INSTRUCTIONS

1. The question paper contains **90** questions in four parts (Part A : Science , Part B: Mental Ability) and **24** pages.

Part A contains 70 questions, Part B contains 20 questions

Each question has four options A, B, C & D, out of which **only one option is correct.**

Each question carries **+3 marks** for correct answer and **-1 mark** for wrong answer.

Please ensure that the Question Paper you have received contains all the QUESTIONS and Pages. If you found some mistake like missing questions or pages then contact immediately to the Invigilator.

2. Indicate the correct answer(s) for each question by filling appropriate bubble(s) in your OMR sheet.

3. Use only HB pencil for darkening the bubble(s).

4. Use of Calculator, Log Table, Slide Rule and Mobile is not allowed.

5. For example if only '**B**' choice is correct then, the correct method for filling the bubble is

A	B	C	D
○	●	○	○

The answer of the question in any other manner (such as putting ✓, cross ✗, or partial shading ◕ etc.) will be treated as wrong.

PART A : SCIENCE

Q.1 to Q.70 has four choices (A), (B), (C), (D) out of which only **ONE** is correct.

1. Examine the following elements :

N, O, F, Ne
P, S, Cl, Ar
Br, Kr
I, Xe

In modern periodic table, on which side these elements are placed-

(A) Top left side (B) Botton left side (C) Top right side (D) Middle side

2. A saturated hydrocarbon has 50 hydrogen atom. The number of carbon atom in the hydrocarbon will be:

(A) 24 (B) 26 (C) 25 (D) 23

3. Rutherford's alpha-particle scattering experiment was responsible for the discovery of

(A) Atomic Nucleus (B) Electron (C) Proton (D) Neutron

4. Which of the following traids represents isotones (same no of neutrons)?

(A) ${}_{6}C^{12}, {}_{6}C^{13}, {}_{6}C^{14}$ (B) ${}_{18}Ar^{40}, {}_{20}Ca^{42}, {}_{21}Sc^{43}$

(C) ${}_{18}Ar^{40}, {}_{20}Ca^{40}, {}_{21}Sc^{41}$ (D) ${}_{7}N^{14}, {}_{8}O^{16}, {}_{9}F^{19}$

ROUGH WORK

5. Dry ice is –

(A) Water in solid state (B) Water in gaseous state

(C) CO_2 in liquid state (D) CO_2 in solid state

6. Name the process by which a drop of ink spreads in a beaker of water –

(A) Diffusion (B) Vaporization (C) Condensation (D) Sublimation

7. Which of the following is not a chemical change-

(A) Electrolysis of water

(B) Boiling of water

(C) Digestion of food

(D) Burning of magnesium ribbon in oxygen to form magnesium oxide.

8. Of these, the metal which occurs in a free state is ____

(A) Na (B) Mg (C) Zn (D) Pt

9. Which of the following statements about the following reactions is correct?

$$ZnO + CO \rightarrow Zn + CO_2$$

(A) ZnO is being oxidizing (B) CO is being reduced

(C) CO_2 is being oxidized (D) ZnO is being reduced

ROUGH WORK

10. Nitrogen moelcule involves formation of
(A) single covalent bond (B) double covalent bond
(C) triple covalent bond (D) ionic bond

11. Graphite is used as a lubricant because it is
(A) greyish black (B) insoluble in water
(C) having high melting point (D) soft, sllipery

12. Which of the following is a combustion reaction –
(A) Boiling of water (B) Melting of wax (C) Burning of petrol (D) None of these

13. Two particles are placed at some distance. If the mass of each of the two particles is doubled, keeping the distance between them unchanged, the value of gravitational force between them will be
(A) $\frac{1}{4}$ times (B) 4 times (C) $\frac{1}{2}$ times (D) unchanged

14. If the index finger points towards the north and the middle finger towards the east, by using Fleming's left hand rule what will be the direction of motion or the force acting on the conductor ?
(A) South (B) West (C) Top (D) Bottom

ROUGH WORK

15. A passenger travels along a straight line with velocity v_1 for first half time and with velocity v_2 for next half time, then the mean velocity v is given by,

(A) $v = \sqrt{\frac{v_2}{v_1}}$ (B) $v = \sqrt{v_1 v_2}$ (C) $v = \frac{2v_1 v_2}{v_1 + v_2}$ (D) $v = \frac{v_1 + v_2}{2}$

16. Lungs perform 2.4 J of work during each expansion. How many times do they expand per minute if their power is 2 Watts?

(A) 50 times (B) 40 times (C) 60 times (D) 30 times

17. Total internal reflection occurs when light travels from :

(A) A rare medium to a denser medium and the angle of incidence is less than the critical angle

(B) A denser medium to rarer medium

(C) A rare medium to denser medium

(D) A rarer medium to a denser medium and the angles of incidence is greater than the critical angle

18. A body at rest may have

(A) Potential Energy (B) Kinetic energy (C) Velocity (D) momentum

19. Unit of Density.

(A) kg/m^3 (B) $kg\ m^3$ (C) m^3/kg (D) none of these

ROUGH WORK

20. An object starts with velocity 5 m/s and after time 10s it has the velocity of 9m/s. Then the displacement is given by

(A) 70 m (B) 90m (C) 20m (D) 0m

21. A car moves from Nagpur to Mumbai (Distance 1000km) and then comes back. Distance and displacement of car is:

(A) 2000 km and 0 km (B) 0 km and 2000 Km

(C) 1000 km and 0 km (D) 0 km and 2000 Km

22. A person holds a mass of 100 Kg for 1 hour. Work done is:

(A) 100 J (B) 6000 J (C) 360000 J (D) Zero

23. Size of object is same as image. Which of the following is possible:

(A) Convex Mirror, Object at Focus (B) Convex Mirror, Object at Center of Curvature

(C) Concave Mirror, Object at Focus (D) Concave Mirror, Object at Center of Curvature

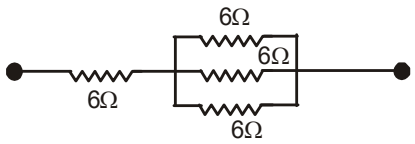
24. Which of the following is formula for power loss in resistance?

(A) IR^2 (B) $\frac{V}{R^2}$ (C) V^2R (D) VI

25. Find equivalent resistance of following circuit.

(A) 2 Ω (B) 4 Ω

(C) 6 Ω (D) 8 Ω



ROUGH WORK

26. Which of the following is not the correct pairing of structure with function ?
(A) Golgi complex : breakdown of complex molecules
(B) Mitochondrion : Production of ATP
(C) Endoplasmic reticulum : synthesis of proteins
(D) Chloroplast : photosynthesis

27. Read thye following statements & identify true & false from them :
1. Microtubules are structural components of cilia
2. Centrioles store hydrolase enzymes
3. Peroxisomes store carbohydrates, fats and proteins in plants
(A) 1 and 3 correct, 2 false
(B) 1 correct, 2 and 3 false
(C) 1, 2 and 3 correct
(D) 1 and 2 correct, 3 false

28. Site of light and dark reactions respectively are -
(A) stroma & grana
(B) thylakoids & quantasomes
(C) grana & stroma
(D) none of above

29. Which one of the following is incorrect about tuberculosis ?
(A) It is caused by Diplococcus tuberculosis
(B) It commonly affects liver
(C) Bacteria releases tuberculin toxin
(D) Patient's sputum contains blood.

ROUGH WORK

30. Which of the following combination is incorrect ?

(A) Plasmodium - Malaria

(B) Trypanosoma - Sleeping sickness

(C) Entamoeba histolytica - Amoebiasis

(D) Verisella zoster - Gastroenteritis

31. Which set of diseases spread through the air ?

(A) Common Cold, Pneumonia, Tuberculosis (B) Plague, Small Pox, Polio

(C) Typhoid, AIDS, Syphilis (D) Malaria, Dysentry, Rabies

32. Trypsin differs from pepsin in that

(A) It digests proteins in alkaline medium in duodenum

(B) It digests proteins in acidic medium in duodenum

(C) Both of these (D) None of these

33. The path taken by food material after ingestion is represented by

(A) Mouth $\rightarrow$ Pharynx $\rightarrow$ Oesophagus $\rightarrow$ Stomach $\rightarrow$Small intestine

(B) Mouth $\rightarrow$ Pharynx $\rightarrow$ Oesophagus $\rightarrow$ Small intestine $\rightarrow$ Stomach

(C) Mouth $\rightarrow$ Oesophagus $\rightarrow$ Stomach $\rightarrow$ Pharynx

(D) Oesophagus $\rightarrow$ Mouth $\rightarrow$Pharynx $\rightarrow$Stomach

ROUGH WORK

34. Select the right order for these:-

(i) Platelets	(a) with out nucleus
(ii) RBC of human	(b) blood clotting
(iii) Amoeba	(c) multicellular
(iv) Hydra	(d) unicellular

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

35. Blood group is due to

(A) specific antigens on the surface of WBC (B) specific antibodies on the surface of RBC
(C) specific antigens on the surface of RBC (D) type of Haemoglobin

36. Bowman's capsule is a part of

(A) Ureter (B) Renal artery
(C) Renal portal vein (D) Uriniferous tubules

37. A soil is said to be fertile when

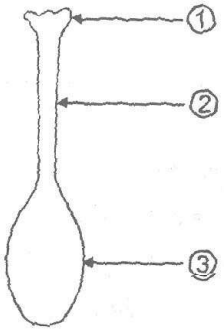
(A) It is rich in organic matter (B) It has a capacity to hold water
(C) It has a capacity to hold nutrients
(D) It holds water and all essential nutrients in a definite proportion

ROUGH WORK

38. Soil is a part of

(A) atmosphere (B) lithosphere (C) hydrosphere (D) ionosphere

39. label the following diagram –



(A) Stigma, style, ovule (B) Stigma, style, ovary

(C) Style, stigma, ovule (D) Style, stigma, ovary

ROUGH WORK

40. Match the column –

Column - I	**Column - II**
(i) Ovulation	**a)** Progesterone
(ii) HIV	**b)** Pituitary gland
(iii) Pregnancy Hormone	**c)** Oxytocin
(iv) Milk ejecting Hormone	**d)** 15th day of menstrual cycle
(v) Goitre	**e)** Thyroid gland
(vi) Gigantism	**f)** AIDS

(A) (i) – d (ii) – f (iii) –a, (iv) –c, (v) –e (vi) – b

(B) (i) – c (ii) – d (iii) – a (iv) – e (v) – f (vi) – b

(C) (i) – f (ii) – d (iii) – a (iv) – c (v) –e (vi) – b

(D) (i) – d (ii) – f (iii) – a (iv) – c (v) – b (vi) – e

41. The function of kidney is mammals is to excrete

(A) extra urea, extra water and extra amino acids

(B) extra urea, extra water and carbohydrate

(C) extra urea, salts and excess water

(D) extra salts, urea and excess water

42. One heart beat in an average man lasts

(A) 0.8 second (B) 0.2 second (C) 0.5 second (D) 1 minute

ROUGH WORK

43. If the CO_2 concentration in the blood increases, the breathing shall

(A) increase (B) decrease (C) affected (D) stop

44. Typical 'lub-dub' sounds heard in heartbeat are due to

(A) closing of bicuspid and tricuspid valves
(B) closing of semilunar valves
(C) closure of bicuspid-tricupid valves followed by semilunar valves
(D) blood under pressure through aorta

45. The smallest bone in mammals is

(A) septomaxillary (B) dentary (C) femur (D) stapes

46. At high altitude, RBCs of human blood will

(A) increase in number (B) decrease in number (C) decrease in size (D) increase in size

47. Cranium is man is made up of

(A) 10 bones (B) 12 bones (C) 16 bones (D) 8 bones

48. Which of the following set of enzymes is responsible for protein digestion –

(A) Pepsin, trypsin, Renins Amylase (B) Pepsin, lipase, Renin & Amylare
(C) Pepsin, chymotrypsin, Trypsin & Renin (D) Amylase, Remin, Lipase & Trybsin

ROUGH WORK

49. What is micropropagation?

(A) germination of seed with cotyledons above the soil

(B) a technique to obtain new planst by cultivating the cells or tissues in culture medium

(C) the mature stage of endosperm

(D) to manufacture hormones

50. Diabetes insipidus is the syndrome which results due to the

(A) failure of neurohypophysial system to inhibit the excess release of ADH

(B) failure of neurohypophysial system to produce or release ADH

(C) inability of pituitary to produce oxytocin

(D) inability of pituitary to release ACTH

51. Accumulation of non bio degradable pesticides in food chain in increasing amount at each higher trophic level is known as.

(A) Pollution (B) Accumulation (C) Biomagnification (D) Fermentation

52. Ultraviolet radiation can cause.

(A) Diabeties (B) Fever (C) Skin cancer (D) Cough & cold

53. Roots grow downward as a response.

(A) Positive phototropic (B) Negative phototropic

(C) Negative geotropic (D) All of these

54. CNS consists of :

(A) Brain (B) Spinal Cord (C) Both (A) and (B) (D) None of these

ROUGH WORK

55. One molecule of Glucose produces energy equal to :
(A) 8 ATP (B) 18ATP (C) 28ATP (D) 38ATP

56. Match the following

I	II
1. Plants	a. Symbiotic relation
2. Animals	b. Heterotrophs
3. Fungi	c. Saprotrophs
4. Linchen	d. Autotrophs

(A) 1 – d, 2 – c, 3 – a, 4 – b (B) 1 – b, 2 – c, 3 – d, 4 – a
(C) 1 – d, 2 – b, 3 – c, 4 – a (D) 1 – a, 2 – b, 3 – d, 4 – c

57. The advantage of RBC's being biconcave is that
(A) to increase surface area (B) they can be packed up like coins
(C) they can fit into capillaries (D) none of the above

58. Ripening of fruits, such as bananas, is hastened by:
(A) Gibberellins (B) Abscisic acid (C) Cytokinin (D) Ethylene

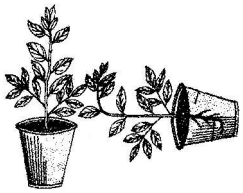
59. Glycolysis results in the production of :
(A) Acetic acid (B) Pyruvic acid (C) Fatty acid (D) Hydrochloric acid

ROUGH WORK

60. Drawin's theory of pangenesis shows similarity with the theory of inheritance of acquired characters.Then what shall be correct according to it ?

(A)Useful organs become strong and developed while useless organs become extinct
(B) Size of organs increases with ageing
(C) Development of organs is due to will power
(D)There should be some physical basis of inheritance

61. Geotropism is a paratonic movement which is caused by unilateral application of force of gravity. From the given figures it can be concluded that _____



(A) Roots are positively geotrophic (B) Stem is positively geotrophic
(C) Stem shows negative geotropism (D) Both (A) and (C)

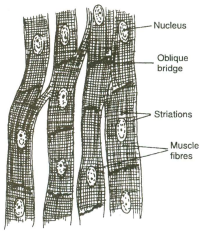
62. Indicate which is the proper sequence of blood flow through the circulatory system

(a) Right atrium (b) Left atrium
(c) Right ventricle (d) Left ventricle
(e) Pulmonary artery (f) Pulmonary vein
(g) Lungs (h) Systemic tissues
(i) Aorta (j) Venae cavae

(A) a–b–c–d–e–f–g–h–i–j (B) j–b–d–e–g–f–b–c–i–h
(C) j–a–c–e–g–f–b–d–i–h (D) j–a–c–e–i–g–f–b–d–h

ROUGH WORK

63. The type of muscle show in the picture given above is



(A) Smooth muscle

(B) Striated muscle

(C) Cardiac muscle

(D) None of these

64. Which of the following is a correctly matched?

(A) Funaria - Angiosperm (B) Sycon - Coelenterata

(C) Antedon - Echinodermata (D) None of these

65. In a human the small intestine is directly connected to anus, which one will not occur in his body:-

(A) Absorption of proteins (B) Absorption of water

(C) Absorption of carbohydrates (D) Absorption of milk

66. Examine the following statement:-

(i) Maple and drumstick seed dispersed by animals

(ii) Xanthium seed dispersed by wind

(iii) Anther & Filament are the parts of stamen

(iv) The fruit of coconut dispersed by animal

Which of the following is correct

(A) (i),(ii) (B) (ii),(iv) (C) (iii) Only (D) (iv) Only

ROUGH WORK

67. If you boils a hen's egg & removes the shell, a white material surrounds the yellow part, what are white & yellow parts respectively:-

(A) Yolk & Albumin (B) Albumin & Globulin
(C) Albumin & yolk (D) White yolk & yellow yolk

68. Thickening of cell wall, lignification and specialization for mechanical functions are characteristic of

(A) Parenchyma (B) Collenchyma (C) Sclerenchyma (D) Aerenchyma

69. Which of the following type of epitheium forms the lining of kidney tubules and ducts of salivary glands?

(A) Columnar epithelium (B) Cubodial epithelium
(C) Squamous epithelium (D) None of these

70. Emphysema is a condition resulting from

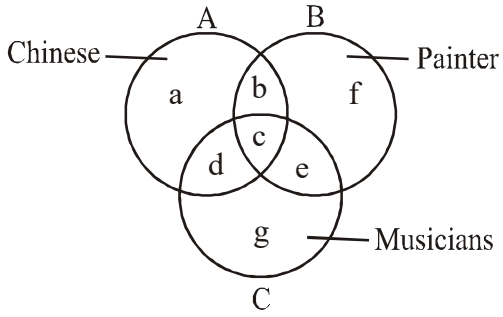
(A) cigarette smoking (B) liquor consumption
(C) drug addiction (D) none of the above

ROUGH WORK

PART B: MENTAL ABILITY

Q.71 to Q.90 has four choices (A), (B), (C), (D) out of which only **ONE** is correct.

Directions (Q.56 & 57) : In the figure given below, there are three intersecting circles each representing certain section of people. Different regions are marked a - g. Read the statements in each of the following questions and choose the letter of the region which correctly represents the statements.



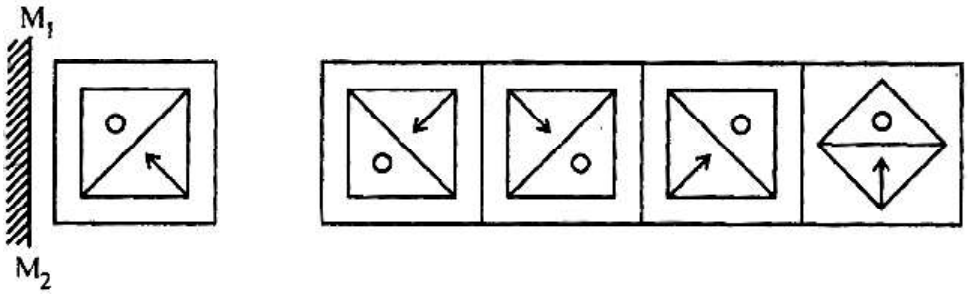
71. Painters who are neither Chinese nor musicians
(A) b (B) c (C) f (D) g

72. Chinese who are painters as well as musicians
(A) a (B) b (C) c (D) d

ROUGH WORK

Direction (Q.73) : In each of the following questions, choose the correct mirror-image of the Fig. (X) from amongst the four alternatives (1), (2), (3) and (4) given along with it. The mirror represented by a line M_1M_2

73.



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

Direction (Q.74 to 76) : Study the following information carefully and answer the questions below.

A team of five is to be selected from amongst five boys A, B, C, D and E and four girls P, Q, R and S. Some criteria for selection are –
A and S have to be together.
P cannot be put with R.
D and Q cannot go together.
C and E have to be together.
R cannot be put with B.
Unless otherwise started, these criteria are applicable to all questions below

74. If two of the members have to be boys, the team will consist of
(A) ABSPQ (B) ADSQR (C) BDSRQ (D) CESPQ

ROUGH WORK

75. If two of the members are girls and D is one of the members, the members of the team other than D are
(A) PQBC (B) PQCE (C) PSAB (D) PSCE

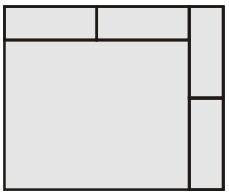
76. If including P at least three members are girls, the members of the team other than P are
(A) QSAB (B) QSBD (C) QSCE (D) RSAD

Direction (Q.77 & 78) : In each of the following questions, one term in the number series is wrong. Find out the wrong term.

77. 6, 15, 35, 77, 165, 221
(A) 35 (B) 77 (C) 165 (D) 221

78. 2, 6, 24, 96, 285, 568, 567
(A) 6 (B) 24 (C) 285 (D) 567

79. What is the number of rectangles in the following figure?



(A) 6 (B) 7 (C) 9 (D) 11

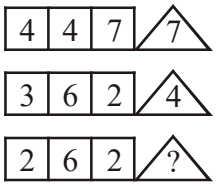
ROUGH WORK

Direction (Q.80) : In each of the following questions, choose that set of numbers from the four alternative sets, that is similar to the given set.

80. Given set : (6, 36, 63)

(A) (7,49, 98) (B) (8, 64, 46) (C) (9, 84, 45) (D) (11, 111, 84)

81. Which one will replace the question mark?



(A) 2 (B) 4 (C) 6 (D) 8

82. How many times do the hands of a clock coincide in a day?

(A) 20 (B) 21 (C) 22 (D) 24

Direction (Q.83) : In the following question there are equations that have become wrong due to wrong order of signs. Choose the correct order of signs from the four alternatives given below. So that the equations become right.

83. $8 = 2 + 4 - 16$

(A) $\times + =$ (B) $\div \times =$ (C) $- + =$ (D) $\times \div =$

ROUGH WORK

Direction (Q.84) : In each blank space wirte one of +, –, × and ÷ signs so that the equation is ture.

84. 15 5 (15 3) = 80

(A) ×, ÷, + (B) ×, ÷, – (C) ×, +, ÷ (D) ×, –, ÷

85. Nine carpenters can make nine chairs in nine days, then one carpenter will make three chairs in how many days?

(A) 3 (B) 9 (C) 27 (D) 18

Directions (Q.86) : Study the following information and answer the questions given below:

(i) A rectangular wooden block is having length 6 cm, breadth 4 cm and height 1 cm.

(ii) Both sides having dimension 4 cm. 1 cm are painted with black colour.

(iii) Both sides having dimension 6 cm. 1 cm are painted in red colour.

(iv) Both sides with dimension 6 cm. 4 cm are painted in green colour.

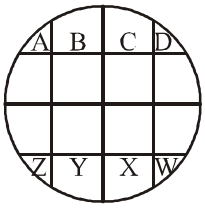
(v) The block is cut into size equal pairs of 1 cm each (from 6 cm side) and into 4 equal parts of 1 cm each (from 4 cm side).

86. If cubes having only "black as well as green" colour are removed, then how many cubes will remain?

(A) 4 (B) 8 (C) 12 (D) None of these

ROUGH WORK

Directions (Q.87 to 89) : A posse of four policeman. A, B, C and D is combining a circular park divided into sixteen plots. P, Q, R and K are the offenders whom they have to catch after given moves. The figure below shows their positions. Note that the by-lanes are North-South and East-West.



87. Who two are positioned North-West and South-East ?

(A) W and A (B) B and Y (C) A and W (D) Z and D

88. If A, B, C and D were to move clockwise four plots and W, X, Y and Z were to move anti-clockwise six plots, then who two would be in North and South directions respectively ?

(A) B and X (B) Y and D (C) Z and A (D) W and C

89. If both A, B, C, D and P, Q, R, K move clockwise three plots, then who two would be positioned North-East and South-West ?

(A) A and W (B) B and X (C) C and X (D) D and Z

ROUGH WORK

Direction (Q.90) : There is some relationship between the two terms to the left of :: and the same relationship holds between the two terms to its right. Find out this term.

90. MK : $\frac{169}{121}$ :: JH : ?

(A) $\frac{100}{64}$ (B) $\frac{100}{81}$ (C) $\frac{64}{120}$ (D) $\frac{81}{100}$

ROUGH WORK

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Answer Key :Sample Paper

Target : NEET

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