GENERAL INSTRUCTIONS FOR SAMPLE TEST PAPERS FOR RESO-SAT/RESO-FAST

STUDENTS MOVING TO CLASS-X

Time : 1½ Hr. **Max. Marks : 100**

1. **In Mathematics, Physics, Chemistry, Biology each question carry 2(two) marks and in Social Science, Mental Ability & English each question carry 1 (one) mark.**
2. **Blank papers, clip boards, log tables, slide rule, calculators, mobile or any other electronic gadgets in any form is not allowed.**
3. **Write your Name and Roll No. in the space provided in the bottom of this booklet.**
4. **Before answering the paper, fill up the required details in the blank space provided in the answer sheet.**
5. **Do not forget to mention your roll number neatly and clearly in the blank space provided in the answer sheet.**
6. **There is 1/4 negative marking for each wrong answer.So attempt each question carefully.**
7. **No rough sheets will be provided by the invigilators. All the rough work is to be done in the blank space provided in the question paper.**
8. **In case of any dispute, the answer filled in the OMR sheet available with the institute shall be final.**

MARKING CRITERIA

No. of Questions	Type	Marks		
		Correct	Wrong	Blank
1–60	Only one correct	Q. No. 1 to 40 : 2 Marks each	–0.50 Marks	0
		Q. No. 41 to 60 : 1 Marks each	–0.25 Marks	

IMPORTANT

PROCEDURE OF FILLING UP THE ANSWERS IN OMR SHEET

Wrong Filling		Right Filling	
Ⓐ Ⓑ Ⓒ Ⓓ	Tick mark	Ⓐ ● Ⓒ Ⓓ	Fully darken with HB Pencil
Ⓐ Ⓑ Ⓒ Ⓓ	Cross mark	Ⓐ ● Ⓒ Ⓓ	Fully darken with HB Pencil
Ⓐ Ⓑ Ⓒ Ⓓ	Half filled or semi dark	Ⓐ ● Ⓒ Ⓓ	Fully darken with HB Pencil
Ⓑ Ⓒ Ⓓ	Light filled	● Ⓑ Ⓒ Ⓓ	Fully darken with HB Pencil

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1. If $x + y = 5$ and $xy = 6$ then the value of $(x^3 + y^3)$ is -

(A) 17 (B) 35

(C) 40 (D) 45

2. If C and A are for circumference and area of a circle respectively, then-

(A) $A = 4\pi C$ (B) $C = 4\pi A$

(C) $C^2 = 4\pi A$ (D) none of these

3. The base of an isosceles triangle is 12 cm and it's perimeter is 32 cm then the area of triangle is-

(A) 30 cm^2 (B) 48 cm^2

(C) 40 cm^2 (D) 20 cm^2

4. If $2^X - 2^{X-1} = 16$, then the value of x^2 is-

(A) 4 (B) 9

(C) 16 (D) 25

5. A park is 10 metres long and 8 metres broad. The length of the longest pole that can be placed in the park is-

(A) 6 m (B) 12.8 m

(C) 13.4 m (D) 1.8 m

6. If M is the mean of 50 observation $x_1, x_2, x_3, \ldots, x_{50}$, then the mean of $\frac{x_1}{50}, \frac{x_2}{50}, \frac{x_3}{50}, \ldots, \frac{x_{50}}{50}$ is :

(A) $\frac{M}{50}$ (B) $M + \frac{1}{50}$

(C) $\frac{50}{M}$ (D) M

7. Any cyclic parallelogram is a :

(A) rectangle (B) rhombus

(C) trapezium (D) square

8. $\left(\frac{5}{6}\right)^2$ is equal to-

(A) $1^2 + 2(1)\left(\frac{5}{6}\right) + \left(\frac{5}{6}\right)^2$

(B) $1^2 - 2(1)\left(\frac{5}{6}\right) + \left(\frac{5}{6}\right)^2$

(C) $1^2 + 2(1)\left(\frac{1}{6}\right) + \left(\frac{1}{6}\right)^2$

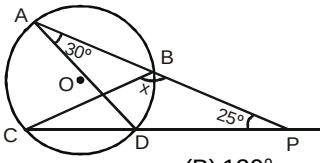
(D) $1^2 - 2(1)\left(\frac{1}{6}\right) + \left(\frac{1}{6}\right)^2$

9. The mean of the value of 1, 2, 3 ..... n with respective frequency x, 2x, 3x ..... nx is :

(A) $\frac{n+1}{2}$ (B) $\frac{2n+1}{3}$

(C) $\frac{n}{2}$ (D) $\frac{2n-1}{6}$

10. In the given figure, the value of x is :



(A) 125° (B) 120°

(C) 145° (D) 135°

11. If the value of 'g' (acceleration due to gravity) at a height h above the surface of the earth is the same as at a depth d below it, then (Assume that h and d < < R earth radius) :

(A) h = d (B) h = d/2

(C) $d = \frac{h}{2}$ (D) $d = h^2$

Space For Rough Work

12. A force of 20 N acts on a body and the body moves through 1 m at an angle of 45º to the direction of force . The work done by the force is :

(A) $10\sqrt{2}$ J (B) $\frac{10}{\sqrt{2}}$ J

(C) $-10\sqrt{2}$ J (D) $-\frac{10}{\sqrt{2}}$ J

13. In which of the following the work done is zero.

(A) Stretching of a spring

(B) Work done by force of gravity when object is moving upward

(C) Work done by the string when it whirls a stone tied to it, in a circle.

(D) Lifting a weight upwards applying upward force.

14. Power of a moving body is stored in the form of :

(A) work and distance (B) force and distance

(C) force and velocity (D) force and time

15. A manufacturer marks the thermometer wrongly. At 0ºC it reads –10ºC, at 100ºC it reads 85ºC. Then the reading at 50ºC will be :

(A) 40ºC (B) 32.5ºC

(C) 37.5ºC (D) 42.5ºC

16. A fisherman is looking at a fish at 45º from the horizontal plane. At what angle he should throw the spear so that it hits the fish ?

(A) 45º (B) >45º

(C) <45º (D) none of the above

17. Inside an electric bulb there is :

(A) Vacuum (B) Air

(C) Inert gas (D) Hydrogen gas

18. The nature and frequency of electric current used in our home is :

(A) Direct current and 50 Hz

(B) Alternating current and 100 Hz

(C) Direct current and 100 Hz

(D) Alternating current and 50 Hz

19. The shape of our Galaxy is :

(A) Elliptical (B) Circular

(C) Serpentine (D) hyperbolic

20. If a man cannot see distant objects clearly he suffers from which defect of vision ?

(A) short sightedness

(B) long sightedness

(C) defect due to old-age

(D) none of the above

21. Which of the following is the most non-metallic element ?

(A) Br (B) Cl

(C) P (D) S

22. Which of the following is the strongest acid ?

(A) HBr (B) HCl

(C) HI (D) HF

23. The negative charge on As_2S_3 sol is due to adsorption of -

(A) H^- (B) OH^-

(C) O^{2-} (D) S^{2-}

Space For Rough Work

24. The ratio of diameter of atom and diameter of nucleus is of the order of -
(A) 10^5 (B) 10^3
(C) 10 (D) 10^{-1}

25. From 200 mg of CO_2, 10^{21} molecules are removed. How many moles of CO_2 are left ?
(A) 0.00166 (B) 0.00454
(C) 0.00288 (D) None of these

26. Burning of paper is a –
(A) Physical process (B) Chemical process (C) Biological process (D) Mechanical process

27. Cotton is a polymer of
(A) fructose (B) glucose
(C) sucrose (D) lactose

28. Which process is used for the separation of different components of petroleum ?
(A) Fractional distillation (B) Filtration
(C) Distillation (D) Sublimation

29. Which of the following can be beaten into thin sheets?
(A) Carbon (B) Zinc
(C) Sulphur (D) Oxygen

30. Which of the following has the highest calorific value?
(A) Petrol (B) Coke
(C) Natural gas (D) Kerosene

31. Electron microscope is more advantageous than light microscope because it
(A) requires no light
(B) has higher magnification
(C) gives depth focus
(D) uses vacuum.

32. Omnis cellula e cellula is generalisation given by :
(A) Lamarck (B) Dutrochet
(C) Leeuwenhoek (D) Virchow

33. Which cell organelle is abundantly found in white blood cells, secretory cells of liver, kidney, tadpole's tail and helps in degenerating action ?
(A) Mitochondria
(B) Golgi body
(C) Lysosome
(D) Endoplasmic reticulum

34. Kingdom monera includes.
(A) Algae (B) Bacteria
(C) Fungi (D) All of the above.

35. The meristematic cells have
(A) thin walls (B) Active nucleus
(C) absence of vacuoles (D) all of the above

36. Prokaryotic cell is the one, which does not have
(A) proper nucleus
(B) mitochondria and golgi bodies
(C) nucleolus in their nucleus
(D) A,B and C all are correct

37. Middle lamella contains
(A) cellulose (B) pectate
(C) lignin (D) cutin

Space For Rough Work

38. Bacteriophages are
(A) bacteria that attacks on plants
(B) virus that attacks on insects
(C) virus that attacks on bacteria
(D) bacteria that attacks on insects

39. What is fertilization ?
(A) Fusion of ovules
(B) fusion of vegetative parts
(C) fusion of male and female gamete
(D) fusion of two male gamete

40. Main air pollutant amongst the following is
(A) CO (B) CO_2
(C) N_2 (D) Sulphur

41. The expansion of cultivations is seen as a sign of :
(A) Disaster (B) Progress
(C) Economic benefit (D) Loss

42. Where are the Banjaras tribe found ?
(A) Uttar Pradesh
(B) Punjab and Rajasthan
(C) Madhya Pradesh and Maharashtra
(D) None of these

43. Where is Bastar located?
(A) Southernmost part of Chhattisgarh
(B) Central Jharkhand
(C) Andhra Pradesh
(D) Jammu and Kashmir

44. The pastoralists had to pay tax on:
(A) Every animal they grazed on the pastures
(B) Number of animals they had
(C) The houses they were living in
(D) None of these

45. Which one of the following countries is known as the 'Bread-Basket of the world'?
(A) Japan (B) USA
(C) India (D) Russia

46. Name a popular English drink of the British.
(A) Coffee (B) Tea
(C) Wine (D) Milk

47. What amount for poverty line was fixed for a person living in the rural area?
(A) Rs. 324 per month
(B) Rs. 325 per month
(C) Rs. 454 per month
(D) Rs. 1,001 per month

48. The other name for 'market price' is :
(A) Minimum Price (B) Maximum Price
(C) Issue Price (D) Proposed Price

49. The Indian state which has the minimum population density is :
(A) Nagaland (B) Himachal Pradesh (C) Goa
(D) Arunanchal Pradesh

50. Fair price shops do not keep stocks of
(A) Foodgrains (B) Sugar
(C) Kerosene Oil (D) Petrol

Direction : (51 to 52) Find the missing term(s) —

51. 240, ? , 120, 40, 10, 2
(A) 120 (B) 240
(C) 40 (D) 10

52.

3	8	10	2	?	1
6	56	90	2	20	0

(A) 0 (B) 3
(C) 5 (D) 7

Space For Rough Work

53. If '+' means 'subtraction', '÷' means 'addition', 'Λ' means 'less than', '–' means 'greater than', 'x' means 'equal to', '<' means 'multiplication', and '>' means 'division', then which of the following statements is true?
(A) $9 \Lambda 5 + 2 \div 4 > 12$
(B) $(9 + 5) \Lambda (2 < 4) > 2$
(C) $9 + 5 \div (2 < 4) \times 12$
(D) $9 < 5 - 2 \div (4 < 12)$

54. Five boys A,B,C,D and E are standing in a row. A is between C and D and B is between D and E. Which of the following pairs represents the boys standing at both the ends ?
(A) C,B (B) E,C
(C) E,A (D) A,C

55. Number of letters skipped in between adjacent letters in the series is in the order of 1^2, 2^2, 3^2. Which of the following series observes the rule given above ?
(A) EGLV (B) GINQ
(C) GINR (D) TVYB

Direction(56 to 60)-Tick the correct alternative.

56. You must apologise _____him _____the wrong you have done to him.
(A) from ; against (B) from ; on
(C) to ; for (D) to ; against

57. I prefer watching the film _____reading.
(A) than (B) to
(C) over (D) as

58. Synonym of Docile is-
(A) vague (B) submissive
(C) stupid (D) stubborn

59. Antonym of Morose is-
(A) healthy (B) gloomy
(C) haggard (D) cheerful

60. His English was roughly_____with my French, so communication was rather difficult.
(A) in accordance to (B) at par
(C) in time (D) in tune

ANSWER KEY

Ques.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Ans.	B	C	B	D	B	A	A	D	B	A	B	A	C	C	C
Ques.	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Ans.	B	C	D	A	A	**B**	**C**	**D**	**A**	**C**	B	B	A	B	C
Ques.	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45
Ans.	B	D	C	B	D	D	B	C	C	A	B	B	A	A	B
Ques.	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
Ans.	B	A	C	D	D	B	C	D	B	A	C	B	B	D	B

1. Two number are in ratio of 6 : 13. If L.C.M. of these numbers is 468 then H.C.F. will be :
(A) 6 (B) 7
(C) 8 (D) 9

2. $\left(\frac{a^{-1}b^{-1}}{a^{-1}+b^{-1}}-\frac{a^{-1}b^{-1}}{a^{-1}-b^{-1}}\right)$ equals to

(A) $\frac{2b}{b^2-a^2}$ (B) $\frac{2b}{a^2-b^2}$

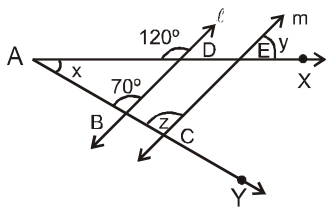
(C) $\frac{2a}{b^2-a^2}$ (D) $\frac{2a}{a^2-b^2}$

3. The age of a man is 4 times that of his son. Five years ago the man was nine times old as his son was at that time.The present age of man is :
(A) 32 years (B) 34 years
(C) 36 years (D) 40 years

4. Sum of the digits of a two digit number is 9.The number obtained by interchanging the digits exceeds the given number by 27. Find the given number.
(A) 24 (B) 36
(C) 26 (D) 34

5. If x + y + z = 0 then $\frac{(x+y)(y+z)(z+x)}{xyz}$ =
(A) – 2 (B) – 1
(C) 0 (D) 1

6. In the figure, ℓ is parallel to m and AX and AY are transversals. Then the value of the angle (x + y – z) is :



(A) 110° (B) 80°
(C) 40° (D) 30°

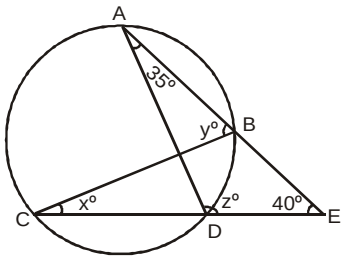
7. If a number x is divided by 95, then remainder is 30. If the same number x is divided by 5, then what is remainder ?
(A) 2 (B) 3
(C) 4 (D) 0

8. In a quadrilateral ABCD, if AB || CD, $\angle D = 2\angle B$, AD = b and CD = a, then the side AB is of length :

(A) $\frac{a}{2}+2b$ (B) a + 2b

(C) 2a – b (D) a + b

9. In a circle two chords AB and CD intersect at an external point E. If $\angle A = 35^\circ$, $\angle E = 40^\circ$, $\angle BCD = x^\circ$, $\angle ABC = y^\circ$ and $\angle ADE = z^\circ$, then false statement is :



(A) z – y = 30° (B) x – y = 40°
(C) x + z =140° (D) y + z = 180°

10. If $x = \frac{4ab}{a+b}$ then the value of $\frac{x+2a}{x-2a}+\frac{x+2b}{x-2b}$ is-
(A) 1 (B) – 2
(C) 4 (D) 2

11. A body falling with a speed 2 ms^{-1} strikes the floor and rebounds with a speed of 1 ms^{-1}. The loss of energy is :
(A) 75% (B) 50%
(C) 25% (D) 12.5%

(Space For Rough Work)

12. A body starts from rest, is acted upon by a uniform acceleration of 10 m/s^2 for 15 s. Find the distance travelled by the body in 15 s.
(A) 1125 m (B) 1132 m
(C) 1152 m (D) 1200 m

13. Newton's second law gives the measure of
(A) velocity
(B) force
(C) momentum.
(D) angular momentum.

14. If we float with our back on water, our weight is :
(A) zero.
(B) equal to our normal weight.
(C) half our normal weight.
(D) greater than the weight of water we displace.

15. A particle moves with a uniform velocity :
(A) the particle must be at rest
(B) the particle moves along a curved path
(C) the particle moves along a circle
(D) the particle moves along a straight line

16. The weight of a block in air is 60 N. When it is immersed in water completely its weight is 52 N. Buoyant force on the block is (in Newtons) :
(A) 52 (B) 60
(C) 8 (D) 112

17. A source of sound moves towards an observer, then :
(A) the amplitude of vibration of the particle is increased.
(B) the wavelength of sound in the medium towards the observer is decreased.
(C) the frequency of the source is increased.
(D) the velocity of the sound in the medium is increased

18. The sound used to break small stones formed in the kidneys into fine grains is :
(A) audible sound. (B) infrasound.
(C) variable sound. (D) ultrasound.

19. The range of human hearing is :
(A) 10 to 20,000 Hz.
(B) 20 to 30,000 Hz.
(C) 20 to 20,000 Hz.
(D) 0 to 120 decibel.

20. The earth exerts gravitational force on an apple falling towards it. The apple :
(A) does not exert any force on the earth.
(B) exerts opposite force on the earth.
(C) exerts equal and opposite force on the earth.
(D) exerts equal force on the earth.

21. An example of mixture is :
(A) iron(II)sulphide (B) sulphuric acid
(C) air (D) hydrogen gas

22. A chlorine molecule is :
(A) di atomic. (B) mono atomic.
(C) tri atomic. (D) poly atomic.

23. The distribution of electrons into different orbits of atoms was suggested by
(A) Rutherford. (B) Bohr and bury.
(C) J.J. Thomson. (D) James Chadwick

24. Protons and neutrons are collectively known **as**
(A) proton (B) neutron
(C) nucleus (D) nucleon

25. An example of a subsstance which changes into gas without passing through liquid state is
(A) dry ice.
(B) sodium chloride.
(C) copper sulphate.
(D) silver nitrate.

26. The atoms of different elements, which have different atomic numbers but same mass number, are called
(A) isotopes. (B) isobars.
(C) isotones. (D) iso-electronic.

(Space For Rough Work)

27. The process by which small colloidal particles lose their charge and combine together to form big sized particles which ultimately settle down, is known as
(A) aerosol. (B) coagulation.
(C) emulsion. (D) peptization.

28. Magnet attracts iron from
(A) $FeSO_4$. (B) Fe + S.
(C) $Fe(OH)_2$. (D) all of these

29. The type of bond formed by the covalency of the compound is :
(A) ionic bond. (B) covalent bond.
(C) dative bond. (D) hydrogen bond.

30. The increasing order of intermolecular force of attraction in the following is
(A) air, iron, milk, oil. (B) air, milk, oil, iron.
(C) iron, milk, oil, air. (D) oil, air, iron, milk.

31. Success of green revolution resulted into the increased production of
(A) food grains (B) milk
(C) honey (D) eggs

32. Organisms consisting of one cell are called
(A) unicellular. (B) multicellular.
(C) many cellular. (D) semi cellular.

33. The jelly like substance between the nucleus and cell membrane is called :
(A) karyoplasm (B) cytoplasm
(C) protoplasm (D) cell wall

34. Fertilisers ensure increased vegetative growth and healthy plants by supplying
(A) nitrogen, carbon and oxygen.
(B) nitrogen, phosphorus and potassium.
(C) phosphorus, calcium and oxygen.
(D) hydrogen, oxygen and carbon.

35. The function of the tendon is to
(A) join bone to the muscle.
(B) join bone to bone.
(C) conduct heat and maintain body tempera ture.
(D) help in excretion.

36. The tissues containing matrix of firm material 'chondrin' is known as :
(A) cartilage. (B) tendon.
(C) ligament. (D) bone.

37. Chordates show the presence of notochord
(A) only during embryonic stage of life cycle.
(B) only during adult stage of life cycle.
(C) throughout all the stages of life cycle.
(D) at least during one stage of life cycle.

38. Ectothermy is the characteristic of
(A) cold blooded animals.
(B) warm blooded animals.
(C) aquatic animals.
(D) terrestrial animals.

39. Symbiotic relationship is seen in
(A) lichens.
(B) yeast.
(C) mushroom.
(D) rusts.

40. Elephantiasis is caused by
(A) ascaris. (B) tapeworm.
(C) liverfluke. (D) wuchereria

41. Which among the following is the highest populated city of India ?
(A) Delhi (B) Mumbai
(C) Kolkata (D) Chennai

42. Which among the following was a mythological name used in threatening sent to landowners in England :
(A) Captain Cook (B) Captain Swing
(C) Captain Hawkin (D) Captain Miami

(Space For Rough Work)

43. Which among the following countries have not propagated the game of cricket ?
(A) Norway (B) Holland
(C) Newzealand (D) Bangladesh

44. Which among the following state is most densely populated state of India :
(A) UP (B) Bihar
(C) West Bengal (D) Maharashtra

45. The river Narmada has its source at :
(A) Satpura
(B) Amarkantak
(C) Brahmgir
(D) Eastern slope of the western ghats

46. Who imposed Apartheid ?
(A) The black Europeans
(B) The white Europeans
(C) African
(D) All of the above

47. The drafting of constitution was completed by National Assembly in the year :
(A) 1789 (B) 1790
(C) 1791 (D) 1792

48. Which among the following cloth material was not worn by ordinary women in England before the seventeeth century ?
(A) Flax (B) Linen
(C) Wool (D) Velvet

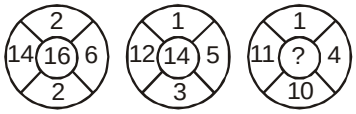
49. The longest river of Peninsular India is :
(A) Narmada (B) Godavari
(C) Amravati (D) Kaveri

50. Corbett National park is located in the state of:
(A) M.P. (B) U.P.
(C) Uttranchal (D) Assam

Directions (51 & 52) : Find the missing terms –

51. 990, 720, 504, ?, 210
(A) 316 (B) 330
(C) 336 (D) 356

52.



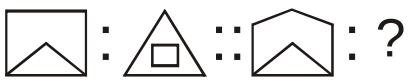
(A) 0 (B) 5
(C) 10 (D) 15

53. Find the day of the week on 18 July, 1776 (leap year).
(A) Monday (B) Tuesday
(C)Thursday (D) Wednesday

54. If in a certain code **MANISH** is written as **NZMRHS**, then how will **RANJITA** be written in the same code ?
(A) IZMQRGZ (B) IZMPRGZ
(C) IZMQRHZ (D) IZMQRIZ

Direction : (55) In the following question, there is a relationship between the two figures on the left of the sign (: :). The same relationship exists between the figures to the right of the sign (: :), of which one is missing. Find the missing one from the alternatives.

55.



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

(Space For Rough Work)

Direction(56 to 60): Tick the correct alternative-

56. He always makes his wife _____ lunch well.
(A) prepared (B) to prepare
(C) prepare (D) prepares

57. Each man and woman _____ given a prize.
(A) were (B) was
(C) are (D) am

58. Neither of us _____ to blame.
(A) am (B) is
(C) are (D) were

59. It is I who _____ to do the work.
(A) is (B) was been
(C) were (D) am

60. The cattle_____ grazing.
(A) is (B) was
(C) are (D) has

ANSWER KEY

Ques.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Ans.	A	D	A	B	B	C	D	D	B	D	A	A	B	D	D
Ques.	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Ans.	C	C	D	C	C	C	A	B	D	A	B	B	B	B	B
Ques.	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45
Ans.	A	A	B	B	A	A	D	A	A	D	B	B	A	C	B
Ques.	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
Ans.	B	C	D	B	C	C	B	C	A	B	C	B	B	D	C

1. Find the measure of an angle, if seven times its complement is 10º less than three times its supplement :

(A) 40º (B) 25º

(C) 30º (D) 15º

2. If the digits of a three-digit number are reversed, then the number so obtained is less than the original number by 297. If the sum of the digit of the number is 8 and its hundred's digit has the largest possible value, then the ten's digit of the number is :

(A) 3 (B) 2

(C) 1 (D) 0

3. If $x = \frac{4ab}{a+b}$ then the value of $\frac{x+2a}{x-2a} + \frac{x+2b}{x-2b}$ is-

(A) 1 (B) – 2

(C) 4 (D) 2

4. If $a^x = \sqrt{b}$, $b^y = \sqrt[3]{c}$ and $c^z = \sqrt{a}$ then the value of xyz is :

(A) $\frac{1}{2}$ (B) $\frac{1}{3}$

(C) $\frac{1}{6}$ (D) $\frac{1}{12}$

5. The mean weight of a class of 34 students is 46.5 kg. If weight of the teacher is included, the mean rises by 500 gm. Then weight of the teacher is:

(A) 175 kg (B) 62 kg

(C) 64 kg (D) 72 kg

6. If $2 \times (\sqrt{2})^5 \times (\sqrt{2})^{-2/3} = (\sqrt{2})^{x+1}$, then the value of x is :

(A) $\frac{2}{3}$ (B) $1\frac{1}{3}$

(C) $4\frac{1}{3}$ (D) $5\frac{1}{3}$

7. A coin is successively tossed two times. Find the probability of getting :

(1) Exactly one head (2) At least one head

(A) $\frac{1}{2}, \frac{3}{4}$ (B) $\frac{2}{3}, \frac{1}{4}$

(C) $\frac{1}{4}, \frac{4}{5}$ (D) $\frac{1}{2}, \frac{2}{3}$

8. In an election between 2 candidates, Bhiku gets 65% of the total valid votes. If the total votes were 6000, what is the number of valid votes that the other candidate Mhattre gets, if 25% of the total votes were declared invalid.

(A) 1625 (B) 1575

(C) 1675 (D) 1525

9. If a + b = 10, ab = 21 then $a^3 + b^3$ =

(A) 370 (B) 365

(C) 360 (D) 355

10. If $25^{x-1} = 5^{2x-1} - 100$, then the value of x is :

(A) 0 (B) 1

(C) 2 (D) None of these

11. How many minimum forces are needed to keep a body at equilibrium ?

(A) One (B) Two

(C) Three (D) Infinite

(Space For Rough Work)

12. A certain force exerted for 1.4 seconds on a moving body increases its speed from 2.8 m/s to 5.6 m/s. If the same force is later applied for 3 seconds, the speed of the body changes by
(A) 11.2 m/s (B) 8.2 m/s
(C) 6 m/s (D) 11.6 m/s

13. The force that causes acceleration and keeps the body moving along the circular path is acting:
(A) towards the centre.
(B) away from the centre.
(C) along the tangent to the circular path.
(D) in the direction of circular motion.

14. The escape velocity for a body projected vertically upwards from the surface of the earth is 11.2 kms^{-1} . If the body is projected in a direction making an angle of 45º with the vertical, the escape velocity will be:
(A) 11.2 km s^{-1} (B) 11.2 × $\sqrt{2}$ km s^{-1}
(C) 11.2 × 2 km s^{-1} (D) 11.2 / $\sqrt{2}$ kms^{-1}

15. The property of sound, which leads to the formation of echoes is :
(A) refraction of sound waves.
(B) reflection of sound waves.
(C) transverse nature of sound waves
(D) longitudinal nature of sound waves.

16. A man is standing asymmetrically between two parallel cliffs. He claps his hands and starts hearing a series of echoes at intervals of 1 second. If the speed of sound in air is 340 m/s, then the distance between the two parallel cliffs is :
(A) 170 m (B) 340 m
(C) 510 m (D) 680 m

17. A man of mass 50 kg jumps to a height of 1 m. His potential energy at the highest point is : ($g = 10\ m/s^2$)
(A) 50 J (B) 60 J
(C) 500 J (D) 600 J

18. The time taken to lift a book from the floor of a room and put it in the shelf, which is at a height of 2 m is 5 seconds. So, in this case, the work done by us will depend on :
(A) height of the bookshelf and the time taken.
(B) weight of the book and the height of the bookshelf.
(C) mass of the book and the time taken.
(D) none of these.

19. For a sound wave through a slinky with constant velocity, wavelength will
(A) increase with increase in frequency.
(B) decrease with increase in frequency.
(C) remain constant with increase in frequency.
(D) increase irrespective of frequency.

20. A man fires a bullet of mass 200 g at a speed of 5 m/s. The gun is of one kg mass. The velocity with which the gun will recoil backward is :
(A) 3 ms^{-1} (B) 2 ms^{-1}
(C) 1 ms^{-1} (D) 0.01 ms^{-1}

21. Total number of protons in Na^+ ion is -
(A) 11 (B) 12
(C) 10 (D) None of these

22. An element M has an atomic number 9 and atomic mass 19. Its ion will be represented by -
(A) M (B) M^{2+}
(C) M^- (D) M^{2-}

23. The valency of Mg in magnesium sulphate is -
(A) 1 (B) –2
(C) –1 (D) 2

(Space For Rough Work)

24. Which of the following metals represents variable valency ?
(A) Cr (B) Sn
(C) Fe (D) All

25. The electrons -
(A) revolve in stationary orbits and are not in a position to either gain or lose energy
(B) are expected to undergo acceleration and radiate energy
(C) fall into the nucleus
(D) do not have any energy to lose

26. The mass of sodium in 11.7 g of sodium chloride is :
(A) 2.3 g (B) 4.6 g
(C) 6.9 g (D) 7.1 g

27. The substance which does not sublime on heating is -
(A) potassium chloride
(B) ammonium chloride
(C) iodine
(D) solid CO_2

28. Two miscible liquids can be separated by distillation when there is a large difference in their -
(A) melting points (B) boiling points
(C) inner electrons (D) valence electrons

29. An atom has a net charge of –1. It has 18 electrons and 20 neutrons. Its mass number is -
(A) 37 (B) 39
(C) 38 (D) 20

30. The radio - isotope used in the treatment of cancer is -
(A) C-12 (B) Co-60
(C) I - 131 (D) P - 31

31. The tissue in leafstalks below the epidermis is made up of :
(A) collenchyma (B) sclerenchyma
(C) parenchyma (D) xylem

32. Rhythmic contraction begins early in embryonic
(A) unstriated muscle
(B) voluntary muscle
(C) cardiac muscle
(D) smooth muscle

33. Use of neem leaves or turmeric during grain storage serves the purpose of :
(A) bio-pesticides
(B) providing nutrients
(C) imparting the desired colours to the grain
(D) preparation of bio fertilizers

34. Jersey and Brown Swiss of cow (foreign breeds) have longer :
(A) tail (B) oesophagus
(C) lactation period (D) life period

35. Lichens while growing on the surface of rocks release certain substances that :
(A) erode the rock surface to powder
(B) enter into the cracks
(C) grow into more organisms
(D) form new rocks

36. Acid rain is caused due to oxides of :
(A) Nitrogen only
(B) Sulphur and phosphorus
(C) Chlorine and nitrogen
(D) Nitrogen and sulphur

37. The causative organism of sleeping sickness is :
(A) Leishmania (B) Trypanosoma
(C) Ascaris (D) Staphylococci

(Space For Rough Work)

38. Kingdom plantae show two phases of life, gametophytic and
(A) autotrophic (B) sporophytic
(C) saprophytic (D) geophytic

39. The domain bacteria and archaea include
(A) prokaryotes. (B) eukaryotes.
(C) nucleus. (D) All of these.

40. The organisms that lack membranes are:
(A) viruses (B) bacteria
(C) protozoans (D) fungi

41. The provision of Indian constitution which was borrowed from U.S.A. is
(A) independence of the judiciary.
(B) parliamentary form of government.
(C) directive principles of state policy.
(D) uni-cameralism.

42. Decisions on every issue related to the elections are taken by the
(A) Prime Minister.
(B) President
(C) Chief Election Commissioner.
(D) Chief commissioner.

43. Amnesty International deals with
(A) human rights.
(B) basic amenities of the people.
(C) violence against indigenous people.
(D) atrocities committed against dalits.

44. Which of the following organisations is responsible for maintaining peace and security among international countries?
(A) IMF (B) World Bank
(C) UNSC (D) UNESCO

45. Who of the following ruled in Zimbabwe since its independence from white-rule?
(A) Kenneth Kaunda (B) Nelson Mandela
(C) P. Johnson (D) Robert Mugabe

46. Population between the age group of 15 years to 59 years is known as
(A) educated population.
(B) dependent population.
(C) working population.
(D) independent population.

47. The function of Academy of Development Sciences (ADS) in Maharashtra is -
(A) strengthening rationing system.
(B) identifying poor families below poverty line.
(C) facilitating network for setting up grain banks in different regions.
(D) fixing Minimum Support Price.

48. For the year 2000,the poverty line for a person was fixed at-
(A) Rs.345 per month for the rural areas.
(B) Rs.329 per month for the rural areas.
(C) Rs.358 per month for the rural areas.
(D) Rs.328 per month for the rural areas.

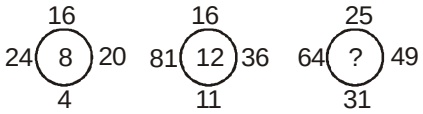
49. The following group of states has the highest and lowest density of population in India in 2001
(A) West Bengal – Arunachal Pradesh
(B) Madhya Pradesh – Sikkim
(C) Kerala – Meghalaya
(D) Arunachal Pradesh-Mizoram

50. A medicinal plant that is found only in India and is used to treat blood pressure is
(A) Tulsi plant (B) Sarpagandha
(C) Babool (D) Neem

(Space For Rough Work)

Directions : ***(51)*** Find the missing term :

51.



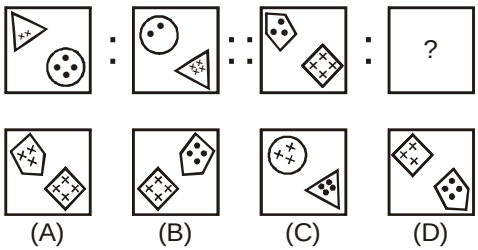
(A) 11 (B) 13
(C) 15 (D) 17

52. If **D** = **4** and **COVER** = **63**, then **BASIS** = ?
(A) 49 (B) 50
(C) 54 (D) 55

53. Anil and Sunil are ranked seventh and eleventh respectively from the top in a class of **31** students. What will be their respective ranks from the bottom in the class ?
(A) 20th and 24th (B) 24th and 20th
(C) 25th and 21st (D) 26th and 22nd

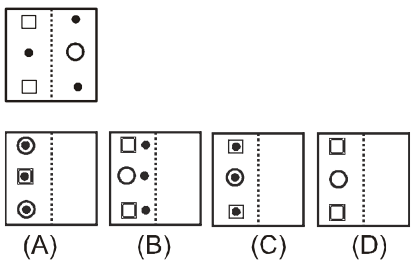
Direction : (54) Figures 1' and 2 are related in a particular manner. Establish the same relationship between figures 3 and 4 by choosing a figure from amongst the five alternatives, which would replace the question mark in figure (4).

54.



Direction : (55) ***A square transparent sheet with a pattern is given in figure. Find out from amongst the alternatives as to how the pattern would appear when the transparent sheet is folded at the dotted line.***

55.



Direction (56 to 60):Tick the correct alternative-

56. "Leave me alone, I am not in a mood to talk right now", said Lisa to her friend.Indirect speech is
(A) Lisa said to her friend that leave me alone I am not in a mood to talk.
(B) Lisa asked her friend to leave her alone she was not in a mood to talk right now.
(C) Lisa told her friend to leave her alone as she was not in a mood to talk right then.
(D) Lisa told her friend that leave me alone as I was not in a mood to talk then.

57. By the time you go to have a bath, the tank
(A) becomes empty.
(B) will have become empty.
(C) has become empty.
(D) becoming empty.

58. Ritesh's stomach is aching. What
(A) will he have eaten?
(B) can he have eaten?
(C) shall he have eaten?
(D) ought to he have eaten?

59. The synonym of '**Dirge'** is-
(A) Happiness song (B) Funeral song
(C) Vibrant song (D) National song

60. The antonym of **'Protract'** is-
(A) Prolong (B) Lengthen
(C) Shorten (D) Elongate

ANSWER KEY

Ques.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Ans.	B	C	D	D	C	D	A	B	A	C	B	C	A	A	B
Ques.	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Ans.	C	C	B	B	C	A	C	D	D	A	B	A	B	A	B
Ques.	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45
Ans.	A	C	A	C	A	D	B	B	A	A	A	C	A	C	D
Ques.	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
Ans.	C	C	D	A	B	B	B	C	D	C	C	B	B	B	C

1. Toffees are bought at the rate of 4 for a rupee. To gain 60% they must be sold at :

(A) 5 for 2 rupee (B) 4 for 2 rupee

(C) 6 for 2 rupee (D) 8 for 2 rupee

2. $\frac{\sqrt{6}}{\sqrt{2}+\sqrt{3}} + \frac{3\sqrt{2}}{\sqrt{6}+\sqrt{3}} - \frac{4\sqrt{3}}{\sqrt{6}+\sqrt{2}}$ is :

(A) 0 (B) 1

(C) – 1 (D) $\frac{1}{2}$

3. A train overtakes two persons walking along a railway track. The first one walks at 4.5 km/hr. The other one walks at 5.4 km/ hr. The train needs 8.4 and 8.5 seconds respectively to over take them. What is the speed of the train if both the persons are walking in the same direction as the train ?

(A) 63 km/hr (B) 72 km/hr

(C) 99 km/hr (D) 81 km/hr

4. In a ΔPQR, PS is bisector of $\angle P$ and $\angle Q = 70^\circ$, $\angle R = 30^\circ$, then :

(A) QS > PQ > PR (B) QS < PQ < PR

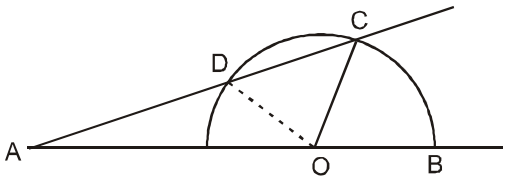
(C) PQ > QS > SR (D) PQ < QS < SR

5. The median of following series 520, 20, 340, 190, 35, 800, 1210, 50, 80, is :

(A) 1210 (B) 520

(C) 190 (D) None of these

6. Let a protractor be laid upon an angle, as pictured. If the measure of $\angle BOC$ is 47°, and measure of $\angle BOD$ is 163°, then the measure of $\angle BAC$ is :



(A) 7.5° (B) 15°

(C) 30° (D) 36°

7. One of the factors of the expression $(2a + 5b)^3 + (2a – 5b)^3$ would be –

(A) 4a (B) 10b

(C) 2a + 5b (D) 2a – 5b

8. The value of k for which x + k is a factor of $x^3 + kx^2 – 2x + k + 4$ is :

(A) – 5 (B) 2

(C) $-\frac{4}{3}$ (D) $\frac{6}{7}$

9. The sum of digits of the number $\left(10^{4n^2+8}+1\right)^2$, where 'n' is a positive integer, is :

(A) 4 (B) 8

(C) 9 (D) 11

10. A, B and C together can finish a piece of work in 4 days. A alone can do it in 9 days and B alone in 18 days. How many days will be taken by C to do it alone.

(A) 15 days (B) 14 days

(C) 13 days (D) 12 days

Space For Rough Work

11. A stationary ball weighing 0.25 kg acquires a speed of 10 m/s when hit by a hockey stick. The impulse imparted to the ball is :
(A) 0.25 N × s (B) 2.5 N × s
(C) 2.0 N × s (D) 0.5 N × s

12. The weight of a boy on the surface of moon is 300 N. The weight of this boy on the surface of earth is :
(A) 300 N (B) 5 N
(C) 50 N (D) 1800 N

13. A body of mass 20 kg moves with an acceleration of $2ms^{-2}$. The rate of change of momentum in SI unit is:
(A) 40 (B) 10
(C) 4 (D) 1

14. The velocity of a body of mass 4 kg possessing K.E. of 0.02 J is :
(A) 0.01 m/s (B) 0.1 m/s
(C) 1 m/s (D) None of these

15. Two bodies of masses 1 kg and 4 kg have equal kinetic energies . The ratio of their momentum is:
(A) 4 :1 (B) 1 : 4
(C) 2 : 1 (D) 1 : 2

16. If a force F is applied on a body and it moves with a velocity V, the power will be :
(A) F × V (B) F/V
(C) F/V^2 (D) F × V^2

17. The speed of sound in a certain medium is 960 m/s. If 3600 waves pass over a certain point in 1 minute, the wavelength is :
(A) 2 m (B) 4 m
(C) 8 m (D) 16 m

18. Negative value of work done indicates that :
(A) force and displacement are in the same direction.
(B) more than one force is acting on the object.
(C) displacement and force are in same directions and both have the same magnitude.
(D) displacement and force are in opposite directions.

19. The total mechanical energy of a vertically projected body is :
(A) the maximum at the highest point.
(B) the maximum at the lowest point.
(C) the maximum at the middle point.
(D) constant throughout the journey.

20. 1 kg wt /m^2 pressure equals :
(A) 1000 Pascal
(B) 1 Pascal
(C) 100 Pascal
(D) 9.8 Pascal

21. In the electronic configurations of elements A and B are $1s^2$, $2s^2$ $2p^6$, $3s^1$ and $1s^2$, $2s^2$ $2p^6$, $3s^2$ $3p^4$ respectively, then the formula of the compound formed by the combination of these elements will be -
(A) AB (B) AB_3
(C) AB_2 (D) A_2B

22. 6.022×10^{20} atoms of silver (at mass = 108 u) weigh -
(A) 108×10^3 g (B) 108 g
(C) 0.108 g (D) 10.8 g

23. The correct chemical formula of aluminium sulphate is -
(A) $Al_2(SO_4)_3$ (B) $Al_2(SO_3)_4$
(C) $Al_3(SO_4)_4$ (D) $AlSO_4$

24. The number of molecules in 1 ml of water is -
(A) 3.3×10^{22} (B) 1
(C) 6.02×10^{23} (D) 18

Space For Rough Work

25. The concentration of solution is the mass of the solute in grams, which is present in -
(A) 10 g of solvent (B) 10 g of solution
(C) 100 g of solvent (D) 100 g of solution

26. Cloud is an example of -
(A) soild dispersed in a gas.
(B) liquid dispersed in a gas.
(C) liquid dispersed in a soild.
(D) solid dispersed in a liquid.

27. The mixture will appear translucent in case of :
(A) Starch + water. (B) CuSO4 + water.
(C) Sugar + water (D) alum + water

28. The clothes that are comfortable for us in summer is :
(A) silk clothes.
(B) cotton clothes.
(C) leather clothes.
(D) rayon clothes.

29. Match the following and choose the correct answer :

Column I	**Column II**
(a) Solid	(i) Super energetic particles
(b) Liquid	(ii) No shape nor fixed volume at a given pressure.
(c) Gas	(iii) Has definite shape
(d) Plasma	(iv) Definite volume with less molecular forces than that in solids.

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

30. One mole of any substance contains 6.023×10^{23} particles. It was determined by -
(A) Berzilius (B) Avogadro
(C) Dalton (D) Perin

31. Flame cells are associated with
(A) respiration (B) excretion
(C) nutrition (D) digestion

32. Four chambered heart occurs in
(A) amphibia (B) crocodile
(C) bird (D) both B and C

33. The basic unit of classification is -
(A) Variety (B) Species
(C) Genus (D) Family

34. The mode of nutrition in most of the fungi is characteristically -
(A) Symbiotic (B) Autotrophic
(C) Holozoic (D) Saprotrophic

35. Most of the monocots lack
(A) sieve tube
(B) phloem parenchyma
(C) companion cells
(D) sclereids.

36. During a microscopic examination, presence of Nissl's granule in a cell; help us identify that cell as a
(A) nerve cell (B) muscle cell
(C) blood cell (D) epithelial cell

37. The disease which begins abruptly and last only for a short duration is known as
(A) Chronic disease (B) Acute disease
(C) Congenital disease (D) Both B and C

38. Which of the following forms a toxic substance in blood by combining with haemoglobin ?
(A) CO (B) CO_2
(C) CH_4 (D) O_2

Space For Rough Work

39. Binomial nomenclature consist of two words :
(A) Genus and Species
(B) Order and Family
(C) Family and genus
(D) Species and variety

40. Malpighian body is made up of :
(A) Bowman's capsule, afferent arteriole and efferent arteriole
(B) glomerulus, afferent arteriole and efferent arteriole
(C) bowman 's capsule , PCT and DCT
(D) bowman's capsule and glomerulus

41. The Chief Justice and other judges of the High Court are appointed by the:
(A) President with consultancy of governor
(B) Chief Justice of the Supreme court
(C) Governor of the concerned state
(D) Chief Minister of the concerned state

42. Right to Constitutional Remedies comes under :
(A) Fundamental Rights (B) Legal Rights
(C) Constitutional Right (D) Natural Rights

43. Which one of the following pairs is correct with respect to the conservation of wild-Life in India ?
(A) Bandipur-Madhya Pradesh
(B) Corbett - Karnataka
(C) Kaziranga - Assam
(D) Kanha Kisli - Uttar Pradesh

44. Who was ruling over Russia when the famous February Revolution took place ?
(A) Stalin (B) Tsar Nicholas II
(C) Hitler (D) Louis XVI

45. Name the autobiography of Hitler :
(A) My Life
(B) The Great Germany
(C) Mien Kamph
(D) The Truth

46. In which part of India evergreen forest are found?
(A) Northern Plains (B) Western Ghats
(C) Himachal Pradesh (D) Deccan Plateau

47. India opted for mixed economy in –
(A) Framing of the Constitution
(B) Second Five Year Plan
(C) Industrial policy of 1948
(D) None of these

48. Food security depends on the :
(A) Public Distribution system
(B) Government vigilance and action at times when this security in threatened
(C) Public Awareness
(D) Both (A) and (B)

49. The architect of Indian Constitution was
(A) B. Pattabhi Sitaramayya.
(B) Mahatma Gandhi.
(C) Dr. Rajendra Prasad.
(D) Dr. B.R. Ambedkar.

50. Who maintains peace and security among nations ?
(A) The UN security council
(B) The International Monetary Fund
(C) The World Bank
(D) UNESCO

Directions : (51) Find the missing terms :

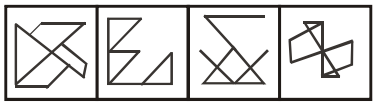
51. 2, 3, 10, 15, 26, ?, 50
(A) 32 (B) 33
(C) 34 (D) 35

Space For Rough Work

Direction : Find the figure in which the problem figure is hidden.

52.

(X)



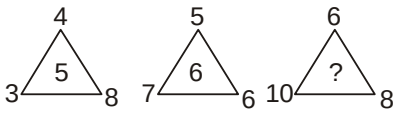
(A) (B) (C) (D)

53. Pointing towards a woman in the photograph, Rajesh said "the only daughter of her grandfather(Paternal) is my wife". How is Rajesh related to that woman

(A) Uncle (Fufa) (B) Father

(C) Maternal uncle (D) Brother

54.



(A) 15 (B) 13

(C) 9 (D) 8

55. Which one of the two interchanges in signs would make the given equation correct ?

$16 + 4 \div 2 - 21 \times 7 = 21$

(A) + and – (B) + and ×

(C) – and ÷ (D) × and ÷

Direction (56-60): Tick the correct alternative:

56. You cannot sit in the examination

(A) so that you have 85% of attendance.

(B) unless you have 85% of attendance.

(C) when if you have 85% of attendance.

(D) therefore you have 85% of attendance.

57. You would have succeeded

(A) even if you had thought more positively.

(B) as soon as you had thought more positively.

(C) so that you had thought more positively.

(D) if you had thought more positively.

58. Buy some fruits

(A) before you go to the market.

(B) unless you go to the market.

(C) after you go to the market.

(D) just in case you go to the market.

59. Police could not find out

(A) as the burglars came.

(B) since the burglars came.

(C) whence the burglars came.

(D) after the burglars came.

60. I laughed so much

(A) since my stomach started aching.

(B) though my stomach started aching.

(C) as my stomach started aching.

(D) that my stomach started aching.

ANSWER KEY

Ques.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Ans.	A	A	D	B	C	B	A	C	A	D	B	D	A	B	D
Ques.	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Ans.	A	D	D	D	D	D	C	A	A	D	B	A	B	B	D
Ques.	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45
Ans.	B	D	B	D	D	A	B	A	A	D	A	A	C	B	C
Ques.	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
Ans.	B	C	D	D	A	D	C	A	D	D	B	D	D	C	D