

**Int. M. Optom (Optometry)****Entrance Examination\_- 2019****Hall Ticket Number****Time: 2 hours****Total marks: 100**

**Please read the following instructions carefully before answering.**

**Instructions**

- 1. This booklet has (25) pages. Please check thoroughly for all the pages.**
  - 2. Enter the Hall ticket number on the first page of this booklet as well as on the OMR sheet.**
  - 3. There is negative marking for PART A only. For each wrong answer 0.33 marks will be deducted.**
  - 4. There are two PARTS in the question paper – PART A (Question nos. 1-25) and PART B (Question nos. 26 – 100). In case of a tie, marks obtained in PART A will be considered for resolving the tie.**
  - 5. Scientific Calculators are not permitted**
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## PART A

1. The series of events during protein synthesis is -

- |                                   |   |
|-----------------------------------|---|
| 1. Bonds form between amino acids | 2. mRNA attaches to a ribosome            |
| 3. codons and anti-codons link    | 4. tRNA bring amino acids to the ribosome |

- A. 1,2,3,4
- B. 2,3,4,1
- C. 2,4,3,1
- D. 4,2,1,3

2. Elevated levels of alcohol in the blood leads to -

- A. Good learning skills
- B. Improved glucose absorption in the cells
- C. Improved memory
- D. Slower reaction time

3. The function of capillaries are to -

- A. Carry blood back to the heart
- B. Carry blood away from the heart
- C. Allow carbon dioxide to pass from the blood to the tissues
- D. Allow nutrients to pass from the blood to the tissues

4. The instrument used for blood pressure measurement is -

- A. Reaction timer
- B. Pulsometer
- C. Sphygmomanometer
- D. Peak flow meter

5. Which of the following gas produced when cigarettes are smoked?

- A. Nitrogen
- B. Oxygen
- C. Carbon dioxide
- D. Carbon monoxide

6. Which of the following choices correctly traces the route of glomerular filtrate on its path to the collecting duct of a nephron?

- A. Proximal tubule, Bowman's capsule, descending loop of Henle, ascending loop of Henle, distal tubule
- B. Bowman's capsule, distal tubule, descending loop of Henle, ascending loop of Henle, proximal tubule
- C. Bowman's capsule, proximal tubule, descending loop of Henle, ascending loop of Henle, distal tubule
- D. Bowman's capsule, proximal tubule, ascending loop of Henle, descending loop of Henle, distal tubule

7. Which among the following are nutritional Polysaccharides?

- A. Starch and Glycogen
- B. Starch and Chitin
- C. Starch and Glucose
- D. Starch and Cellulose

8. Depletion of Ozone levels in atmosphere is critical because:

- A. We will be subjected to severe water shortage
- B. We will be subjected to an increased exposure of UV rays
- C. We will be subjected to an increased exposure to various particulate pollutants
- D. We will be subjected to a decreased atmospheric pressure

9. Which amongst them is the odd one ?

- A. Nucleic acid
- B. Lipid
- C. Protein
- D. Monosaccharide

10. Aldosterone is responsible for the regulation of

- A. Vitamins
- B. Electrolytes
- C. Minerals
- D. Enzymes

11. A disease caused by an autosomal primary non-disjunction is

- A. Sickle cell anemia
- B. Down's Syndrome
- C. Turner's syndrome
- D. Klinefelter's syndrome

12. A verandah 1.25 m is constructed all along outside of a room 7.5 m long and 5 m wide. What is the area of the verandah?

- A. 37.5 m<sup>2</sup>
- B. 47.5 m<sup>2</sup>
- C. 17.5 m<sup>2</sup>
- D. 27.5 m<sup>2</sup>

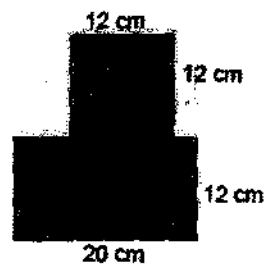
13. A floor is 10 m long and 6 m wide. A square carpet of side 5 m is laid on the floor. What is the area of the floor not carpeted?

- A. 25 m<sup>2</sup>
- B. 35 m<sup>2</sup>
- C. 35 m<sup>3</sup>
- D. 25 m<sup>3</sup>

14. The area of a trapezium is 1080 cm<sup>2</sup>. If the lengths of its parallel sides are 55.6 cm and 34.4 cm, find the distance between them.

- A. 24 cm
- B. 14 cm
- C. 34 cm
- D. 26 cm

15. Find the area of figure given below, round your answer to one decimal place if necessary.



- A.  $284 \text{ cm}^2$
- B.  $384 \text{ cm}^2$
- C.  $180 \text{ cm}^2$
- D.  $484 \text{ cm}^2$

16. A gas mixture consists of 4 moles of  $\text{O}_2$  and 6 moles of Ar at temperature T. Neglecting all vibrational modes, the total internal energy of the system is

- A.  $19RT$
- B.  $15RT$
- C.  $11RT$
- D.  $24 RT$

17. A particle executes linear simple harmonic motion with an amplitude of 6 cm. when the particle is at 4 cm from the mean position, the magnitude of its velocity is equal to that of its acceleration.

Then its time period in seconds is

- A.  $8\pi / \sqrt{24}$
- B.  $8\pi / \sqrt{20}$
- C.  $\sqrt{24} / 8\pi$
- D.  $\sqrt{20} / 8\pi$

18. A beam of light from a source L is incident normally on a plane mirror fixed at a certain distance  $x$  from the source. The beam is reflected back as a spot on a scale placed just above the source L. when the mirror is rotated through a small angle  $\theta$ , the spot of the light is found to move through a distance  $y$  on the scale. The angle  $\theta$  is given by
- A.  $2y/x$
  - B.  $x/2y$
  - C.  $2x/y$
  - D.  $y/2x$
19. Young's double slit experiment is first performed in air and then in a medium other than air. It is found that 10<sup>th</sup> bright fringe in the medium lies where 7<sup>th</sup> dark fringe lies in air. The refractive index of the medium is nearly
- A. 1.60
  - B. 1.86
  - C. 1.66
  - D. 1.54
20. A thin prism having refracting angle  $5^\circ$  is made of glass of refractive index of 1.4. this prism is combined with another thin prism of glass of refractive index 1.6. this combination produces dispersion without deviation. The refracting angle of second prism should be
- A.  $3^\circ$
  - B.  $6^\circ$
  - C.  $4^\circ$
  - D.  $5^\circ$
21. Two cars moving in opposite direction approach each other with speed of 25 m/s and 18 m/s respectively. The driver of the first car blows a horn having a frequency 500 Hz. The frequency heard by the driver of the second car is [velocity of sound 400 m/s]
- A. 600 Hz
  - B. 557 Hz
  - C. 540 Hz
  - D. 500 Hz

22. Mr X walked up a stationary escalator in 10sec. On other day, if he remains stationary on the moving escalator then the escalator takes him up in 5sec. The time taken by him to walk up on the moving escalator will be:
- A. 5 sec
  - B. 4 sec
  - C. 3 sec
  - D. 7 sec
23. Find the x intercept of the graph of the equation  $4x - 6y = 16$ .
- A. (0,4)
  - B. (0,6)
  - C. (6,0)
  - D. (4,0)
24. X and Y are two students seeking admission in a college. The probability that X is selected is 0.7 and the probability that exactly one of them is selected is 0.6. the probability that Y is selected is
- A. 0.25
  - B. 0.40
  - C. 0.50
  - D. 0.33
25. 10% of the bulbs produced in a factory are of red color and 2% are red and defective. If one bulb is picked up at random, determine the probability of its being defective if it is red
- A. 0.5
  - B. 0.2
  - C. 0.4
  - D. 0.3

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**PART B**

**26. A high white blood cell count could indicate -**

- A. Haemophilia
- B. Diabetes
- C. Anaemia
- D. Leukaemia

**27. The following stain is used for staining plant cells to view under the microscope.**

- A. Cell stain
- B. Iodine solution
- C. Biuret reagent
- D. Benedicts solution

**28. These two substances are required to break down hydrogen peroxide by manganese dioxide?**

- A. Oxygen and water
- B. Water and carbon dioxide
- C. Water and carbon dioxide
- D. Oxygen and food

**29. Which of the following never contains in food chain?**

- A. producer
- B. consumer
- C. habitats
- D. omnivore

**30. Which of the three substances are acidic?**

- A. vinegar, baking soda and oven cleaner
- B. bleach, baking soda and limewater
- C. vinegar, Coke and lemonade
- D. lime water, Coke and lemonade



31. These two gases are responsible for causing acid rain -
- A. Sulphur dioxide and nitrogen dioxide
  - B. Nitrogen dioxide and carbon dioxide
  - C. Carbon dioxide and oxygen
  - D. Sulphur dioxide and carbon dioxide
32. The following always happens in a chemical reaction -
- A. A color change occurs
  - B. A gas is given off
  - C. Heat energy is absorbed
  - D. A new substance is formed
33. The four main elements in the human body are -
- A. sulphur, nitrogen, oxygen and hydrogen
  - B. carbon, nitrogen, oxygen and hydrogen
  - C. carbon, sulphur, nitrogen and hydrogen
  - D. carbon, sulphur, oxygen and hydrogen
34. A balanced diet consists of -
- A. Proteins, carbohydrates and hydrocarbons
  - B. Fats, proteins and carbohydrates
  - C. Fats, proteins and hydrocarbons
  - D. Fats, carbohydrates and hydrocarbons
35. More than 60% of body weight is made up of
- A. fibre
  - B. fat
  - C. water
  - D. protein

36. Name the valve that lies between the Right Atrium and Right Ventricle.

- A. Bicuspid valve
- B. Tricuspid valve
- C. Aortic Semilunar valve
- D. Pulmonary Semilunar valve

37. Which of the following has a rate of urinary excretion that is almost always identical to its rate of glomerular filtration in a healthy adult?

- A. Creatinine
- B. Chloride
- C. Glucose
- D. Sodium

38. Blood returns to the heart from the capillaries via.....

- A. Arterioles, veins, vena cava
- B. Veins, venules, vena cava
- C. Venules, veins, aorta
- D. Venules, veins, vena cava

39. The gland responsible for secreting hormone that increases blood calcium levels:

- A. Adrenal
- B. Thyroid
- C. Pancreas
- D. Parathyroid

40. Mesons can be found in

- A. Laser
- B. Cosmic Rays
- C. UV rays
- D. IR rays

**41. Arthritis denotes the inflammation of**

- A. Bones
- B. Muscles
- C. Joints
- D. Cartilage

**42. Another name for Dry ice is**

- A. Solid CO<sub>2</sub>
- B. Gaseous CO
- C. Solid CO
- D. Gaseous CO<sub>2</sub>

**43. The chemical term of converting an unsaturated vegetable oil to saturated fat is**

- A. Ionization
- B. Reduction
- C. Dissociation Sublimation
- D. Transformation

**44. Sweating while exercising is a process which responds to maintain**

- A. Electrolyte Homeostasis
- B. Fluid Homeostasis
- C. Temperature Homeostasis
- D. Protein Homeostasis

**45. Vitamin toxicity could not be obtained with**

- A. Vitamin C
- B. Vitamin D
- C. Vitamin K
- D. Vitamin E

**46. The branch of Zoology that concerns the study of birds is known as:**

- A. Kineosology
- B. Ornithology
- C. Ichthyology
- D. Acarology

**47. Which of the metal shown has the highest density?**

- A. Iron
- B. Calcium
- C. Silver
- D. Gold

**48. What name is given to a catalyst affects living things?**

- A. A precipitate
- B. Platinum
- C. A converter
- D. An enzyme

**49. Genetics is the study of :**

- A. Functions of nuclear material
- B. Sexual and asexual characteristics
- C. Science of reproduction
- D. Study of human traits

**50. Choose the correct pair**

- A. Sore throat : bacterial infection
- B. Amoebiasis : Fungi
- C. Malaria : Viral
- D. Typhoid : Helminthes

**51. In which line are all three substances acidic?**

- A. vinegar, baking soda and oven cleaner
- B. lime water, Coke and lemonade
- C. bleach, baking soda and limewater
- D. vinegar, Coke and lemonade

**52. Which part is responsible for controlling the cell?**

- A. Chloroplast
- B. Vacuole
- C. Nucleus
- D. Cell wall

**53. If a material is described as being biodegradable it can be**

- A. Softened by heating
- B. Easily moulded into different shapes
- C. Broken down by bacteria in the soil and rot away
- D. Disposed of by burning

**54. Which feature is not a pathognomic feature of Inflammation**

- A. Redness
- B. Heat
- C. Edema
- D. Chills

**55. Find the odd man out in this combination:**

- A. Cells Tissue Organ System
- B. Cell Nuclues Chromosome Mitochondria
- C. Nucleus, Mitosis, Meosis, Chromosomes
- D. Bone cartilage, tendon, muscle, pacemaker

**56. Which one is not correct:**

- A. Insulin : Pancreas
- B. Epinephrine: Adrenal
- C. Prolactin : Pituitary
- D. Oxytocin : Thyroid

**57. Which is the wrong answer about Fluorosis:**

- A. Affects teeth
- B. Affects Bones
- C. Affects non skeletal tissues
- D. Changes are transient and reversible

**58. Changes that occur at birth after cutting the umbilical cord include:**

- A. Descent of the testis to scrotal sac
- B. Ascent of the testis away from Scrotum
- C. Gas exchange takes place in baby's lungs
- D. Fetal heart shunts close

**59. Physiologic Jaundice in a new born is because of:**

- A. Severe Infection
- B. Blood mismatch between mother and the baby
- C. It is due to the breakdown of red blood cells and to the immaturity of the newborn's liver.
- D. Congenital infection in a baby

**60. Which virus has been associated with cervical Cancer:**

- A. HIV
- B. HSV
- C. HPV
- D. HTLV

**61. The protein coat of a virus is called:**

- A. Cosmid
- B. Plasmid
- C. Capsid
- D. Plastid

**62. What can Vitamin B12 deficiency lead to?**

- A. Night blindness
- B. Pernicious anemia
- C. Beri-Beri
- D. Loss of appetite

**63. The term "Peristalsis" is associated to this system of the human body:**

- A. Excretory system
- B. Nervous system
- C. Endocrine system
- D. Digestive system

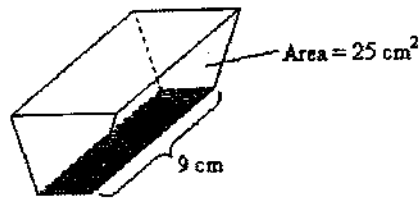
**64. Calcium balance in the body is controlled by this gland:**

- A. Adrenal gland
- B. Pituitary gland
- C. Parathyroid gland
- D. Salivary glands

**65. Before a nationwide election, a polling place was trying to see who would win. Which choice best represents a sample?**

- A. A selection of voters over age 50.
- B. A selection of male voters.
- C. A selection of voters of different ages.
- D. All voters.

66. Find the volume of the following right prism.



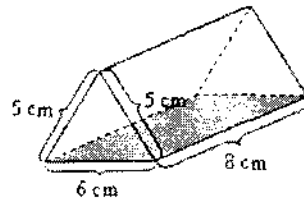
- A.  $225 \text{ cm}^3$   
 B.  $325 \text{ cm}^3$   
 C.  $225 \text{ cm}^2$   
 D.  $325 \text{ cm}^2$
67. A strip of width 3 cm is cut out all round from a sheet of paper with dimensions  $30 \text{ cm} \times 20 \text{ cm}$ . Find the area of the strip cut out and the area of the remaining sheet.
- A.  $284 \text{ cm}^2, 333 \text{ cm}^2$   
 B.  $264 \text{ cm}^2, 336 \text{ cm}^2$   
 C.  $244 \text{ cm}^3, 346 \text{ cm}^3$   
 D.  $264 \text{ cm}^3, 336 \text{ cm}^3$
68. A rectangular field is of dimensions  $20 \text{ m} \times 15 \text{ m}$ . Two paths run parallel to the sides of the rectangle through the centre of the field. The width of the longer path is 2 m and that of the shorter path is 1 m. Find the area of the path.
- A.  $53 \text{ m}^2$   
 B.  $63 \text{ m}^2$   
 C.  $53 \text{ m}^3$   
 D.  $63 \text{ m}^3$



69. Two crossroads, each of width 8 m, run at right angles through the centre of a rectangular garden of length 500 m and breadth 250 m and parallel to its sides. Find the area of the garden excluding crossroads.

- A. 1190.64 area
- B. 1290.64 area
- C. 1090.64 area
- D. 1390.64 area

70. Find the volume of the following right prism.



- A.  $86 \text{ cm}^3$
- B.  $96 \text{ cm}^3$
- C.  $96 \text{ cm}^2$
- D.  $86 \text{ cm}^2$

Use the frequency table to solve the next 4 (71 – 74) questions

Scores	Frequency
14	8
15	5
16	11
17	7
18	7
19	13

71. What is the mean score?

- A. Mean 16.76
- B. Mean 15.76
- C. Mean 14.76
- D. Mean 19.78

72. What is the median score?

- A. Median 18
- B. Median 17
- C. Median 16
- D. Median 15

73. What is the mode score?

- A. Mode 17
- B. Mode 18
- C. Mode 19
- D. Mode 12

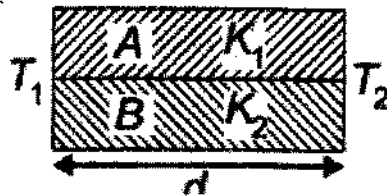
74. What is the range?

- A. Range: 5
- B. Range: 8
- C. Range: 7
- D. Range: 6

75. The ratio of resolving powers of an optical microscope for two wavelengths  $\lambda_1 = 6000 \text{ \AA}$  and  $\lambda_2 = 8000 \text{ \AA}$  is

- A. 3:4
- B. 4:3
- C. 8:6
- D. 6:8

76. Two rods A and B of different materials are welded together as shown in figure. Their thermal conductivities are  $K_1$  and  $K_2$ . The thermal conductivity of the composite rod will be



- A.  $K_1 + K_2$
- B.  $K_1 + K_2 / 2$
- C.  $K_1 * K_2$
- D.  $K_1 * K_2 / 2$

77. The distance  $d$  between point  $(-6,-7)$  and  $(-3,-3)$  is

- A. 6
- B. 7
- C. 5
- D. 3

78. Cosecant is a multiplicative inverse of

- A. Cosine
- B. Tangent
- C. Secant
- D. Sine

79. A parallel beam of light of wavelength  $\lambda$  is incident normally on a single slit width  $d$ . Diffraction bands are obtained on a screen placed at a distance  $D$  from the slit. The second dark band from the central bright band will be at a distance given by

- A.  $2\lambda D/d$
- B.  $d/2\lambda D$
- C.  $2\lambda d/D$
- D.  $D/2\lambda d$

80. Extraction of gold and silver involves leaching with  $CN^-$  ion. Silver is later recovered by

- A. Displacement with  $Cn$
- B. Zone refining
- C. Displacement with  $Zn$
- D. Distillation

81. Due to Doppler effect the shift in wavelength observed is  $0.3 \text{ \AA}$ , for a star producing a wavelength  $6000 \text{ \AA}$ . The velocity of recession of the star will be

- A.  $15 \text{ Km s}^{-1}$
- B.  $20 \text{ Km s}^{-1}$
- C.  $30 \text{ Km s}^{-1}$
- D.  $25 \text{ Km s}^{-1}$

82. A rectangle has a perimeter of 50 meters and a length of 14 meters. Its width is

- A. 14 meters
- B. 13 meters
- C. 11 meters
- D. 12 meters

83. If  $\theta_1$  and  $\theta_2$  be the apparent angles of dip observed in two vertical planes at right angles to each other, then the true angle of dip  $\theta$  is given by

- A.  $\cot^2 \theta = \cot^2 \theta_1 + \cot^2 \theta_2$
- B.  $\cot^2 \theta = \cot^2 \theta_1 - \cot^2 \theta_2$
- C.  $\sin^2 \theta = \sin^2 \theta_1 + \sin^2 \theta_2$
- D.  $\sin^2 \theta = \sin^2 \theta_1 - \sin^2 \theta_2$

84. A metal rod of 1m length is dropped exact vertically on to a hard metal floor. With an oscilloscope it is determined that the impact produced a longitudinal wave of 1.5k Hz frequency. The speed of sound in the metal rod is

- A. 2400 m/s
- B. 1200 m/s
- C. 3400 m/s
- D. 3000 ms

85. The lines  $y = 2x$  and  $2y = -x$  are

- A. Parallel
- B. Vertical
- C. Perpendicular
- D. Horizontal

86. What is the complementary angle to angle  $B = \pi/3$

- A.  $\pi/6$
- B.  $\pi/2$
- C.  $\pi/5$
- D.  $\pi/3$

87. Mr. X measures the angle of elevation from a point on the ground to the top of the tree and find it to be  $30^\circ$ . Mr X then walks 20 meters towards the tree and finds the angle of elevation from this new point to the top of the tree to be  $45^\circ$ . Height of the tree is
- A.  $-\sqrt{3} * 20 / (\sqrt{3} - 3)$
  - B.  $-\sqrt{20} * 3 / (\sqrt{20} - 3)$
  - C.  $-\sqrt{3} / (\sqrt{3} - 3)$
  - D.  $-(\sqrt{3} - 3) / \sqrt{3}$
88. The resistance of a wire is 'R' ohm. If it is melted and stretched to 'n' times its original length its new resistance will be
- A.  $R / n^2$
  - B.  $n^2 / R$
  - C.  $n^2 R$
  - D.  $n R$
89. A light beam is incident on a denser medium whose refractive index is 1.414 at an angle of incidence of  $45^\circ$ . The ratio of width of refracted beam in a medium to the width of the incident beam in air is
- A.  $\sqrt{2} : \sqrt{3}$
  - B.  $\sqrt{3} : \sqrt{2}$
  - C.  $\sqrt{3} : 1$
  - D.  $1 : \sqrt{3}$
90. A ship A is moving westwards with a speed of  $10 \text{ Kmh}^{-1}$  and a ship B 100 km south of A is moving northwards with a speed of  $10 \text{ kmh}^{-1}$ . The time after which the distance between them becomes shortest is
- A.  $10\sqrt{2} \text{ h}$
  - B.  $2\sqrt{10} \text{ h}$
  - C.  $5\text{h}$
  - D.  $2 \text{ h}$

91. As shown in the figure three blocks A, B and C of masses 4 kg, 2 kg, and 1 kg respectively are in contact on a frictionless surface. If a force of 14 N is applied on the 4 kg block then the contact force between A and B is



- A. 6 N  
 B. 8 N  
 C. 2 N  
 D. 4 N
92. A block of mass 10 Kg, moving in x direction with a constant speed of  $10 \text{ ms}^{-1}$  is subjected to a retarding force  $F = 0.1 \text{ xJ} / \text{m}$  during its travel from  $x = 20 \text{ m}$  to  $30 \text{ m}$  its final KE will be
- A. 450 J  
 B. 500 J  
 C. 475 J  
 D. 375 J
93. Two spherical bodies of mass  $M$  and  $5M$  and radii  $R$  and  $2R$  are released in free space with initial separation between their centers equal to  $12R$ . if they attract each other due to gravitational force only then the distance covered by the smaller body before collision is
- A.  $10 R$   
 B.  $2.5 R$   
 C.  $24 R$   
 D.  $7.5 R$
94. The heating of phenyl-methyl ethers with HI produces
- A. Phenol  
 B. Benzene  
 C. Ethyl chloride  
 D. Iodobenzene

95. The gas that can readily de-colorizes acidified  $\text{KMnO}_4$  solution is

- A.  $\text{CO}_2$
- B.  $\text{P}_2\text{O}_5$
- C.  $\text{SO}_2$
- D.  $\text{NO}_2$

96. Van mahotsava is a festival of:

- A. Worshipping air
- B. Worshipping rivers
- C. Worshipping mountains
- D. Planting trees in open area

97. The two nearest harmonics of a tube closed at one end and open at other end are 220 Hz and 260 Hz. What is the fundamental frequency of the system?

- A. 30 Hz
- B. 20 Hz
- C. 40 Hz
- D. 50 Hz

98. Zygotic meiosis is characteristic of

- A. Fucus
- B. Chlamydomonas
- C. Funaria
- D. Marchantia

99. Coconut fruit is a

- A. Berry
- B. Nut
- C. Pseudo fruit
- D. Drupe



T-2

100. The hepatic portal vein drains blood to liver from:
- A. Stomach
  - B. Heart
  - C. Kidneys
  - D. Intestine

# University of Hyderabad


## Entrance Examinations - 2019

School/Department/Centre : SCHOOL OF MEDICAL SCIENCES

Course/Subject : Int. M.Optom

Q.No.	Answer	Q.No.	Answer	Q.No.	Answer	Q.No.	Answer
1	C	26	D	51	D	76	B
2	D	27	B	52	C	77	C
3	D	28	A	53	C	78	D
4	C	29	C	54	D	79	A
5	D	30	C	55	D	80	C
6	C	31	A	56	D	81	A
7	A	32	D	57	D	82	C
8	B	33	B	58	B	83	A
9	D	34	B	59	C	84	D
10	B	35	C	60	C	85	C
11	B	36	B	61	C	86	A
12	A	37	A	62	B	87	A
13	B	38	D	63	D	88	C
14	A	39	D	64	C	89	B
15	B	40	B	65	C	90	C
16	A	41	C	66	A	91	A
17	B	42	A	67	B	92	C
18	D	43	B	68	A	93	D
19	D	44	C	69	A	94	A
20	A	45	A	70	B	95	C
21	B	46	B	71	A	96	D
22	C	47	D	72	B	97	B
23	D	48	D	73	C	98	B
24	A	49	A	74	A	99	D
25	B	50	A	75	B	100	D

Note/Remarks : No Change

  
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