A Specially Designed Initiative
to Encourage Young Talent by

ALLEN CAREER INSTITUTE
path to success
KOTA (RAJASTHAN)

TALLENTEX 2017 : (09, October 2016)

PAPER CODE
W

TALLENTEX 2017

ALLEN'S Talent Encouragement Exam

CLASS - 11th (XI)

Duration: 2 Hrs. | Maximum Marks : 320

Tallentex Roll No.	5								Answer Sheet No.	T	5						

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. 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.
6. After breaking the Question Paper seal, check there are **16 pages** in the booklet. This Question Paper contains 80 MCQs with 4 choices (Subjects: Mental ability: 1-20, Physics: 21-40, Chemistry: 41-60, Biology: 61-80 / Maths: 61-80)
   Important : Attempt Only One Subject from Biology / Mathematics.
7. Think wisely before darkening bubble as **there is negative marking for wrong answer**. Answer once marked by pen cannot be cancelled.
8. 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.
9. If you are found involved in cheating or disturbing others, then your ORS will be cancelled.
10. Do not put any stain on ORS and hand it over back properly to the invigilator.
11. You can take along the question paper after the test is over.

*** Fill appropriate circle of subject in column no. 12 of ORS, otherwise your ORS will be treated as invalid.**

ALLEN RESULT: JEE ADVANCED-2016

4 in Top 10 | 12 in Top 50 | 25 in Top 100 AIR

AIR : 2

Bhavesh Dhingra
Classroom

AIR : 3

Kunal Goyal
Classroom

AIR : 9

Gaurav Didwania
Classroom

AIR : 18

Rohan Garg
Classroom

AIR : 19

Animesh Bohra
Distance

AIR : 23

Ritesh Goenka
Classroom

AIR : 27

Vikrant Garg
Classroom

AIR : 29

Sharvik Mittal
Classroom

AIR : 33

Ishan Tarunesh
Distance

AIR : 36

Naman Jain
Classroom

AIR : 48

Sushil Khyalia
Classroom

Total Selections

3883

Classroom : **2857** | Distance : **1026**

ALLEN RESULT: NEET (UG)-2016

7 in Top 10 | 35 in Top 50 | 58 in Top 100 AIR

AIR : 2

Ekansh Goyal
Classroom

AIR : 3

Nikhil Bajiya
Classroom

AIR : 4

Ashank Khaitan
Distance

AIR : 6

Dyuti Shah
Distance

AIR : 7

Japnoor Kaur
Distance

AIR : 10

Utkarsh Anand
Classroom

AIR : 12

Prakhar Bansal
Classroom

AIR : 13

Lajjaben Patel
Classroom

AIR : 15

Gurasis Singh
Distance

AIR : 18

Swetank Anand
Classroom

AIR : 19

Mahak Kr. Surana
Classroom

AIR : 20

Prachi Singh
Classroom

Total Qualified

33106

Classroom : **26198** | Distance : **6908**

Authenticity of Result : Power of **ALLEN**

ALLEN RESULT: AIIMS-2016

8 in Top 10 | 25 in Top 36

AIR : 3

Lajjaben Patel
Classroom

AIR : 4

Het Sanjay Shah
Classroom

AIR : 5

Mridul Sharma
Classroom

AIR : 6

Dyuti Shah
Distance

AIR : 7

Aishvary Gupta
Classroom

AIR : 8

Kushagra Pandey
Distance

AIR : 9

Ekansh Goyal
Classroom

AIR : 11

Ira Pachori
Distance

AIR : 12

Ritik M Goyal
Classroom

AIR : 13

Amol Sood
Classroom

AIR : 17

Ashank Khaitan
Distance

AIR : 19

Dhruvil D. Shah
Classroom

AIR : 20

Swetank Anand
Classroom

AIR : 21

Ankush Garg
Classroom

AIR : 23

Sanil Garg
Distance

AIR : 25

Aditya Agarwal
Distance

AIR : 27

Vishal Saini
Distance

AIR : 28

Gurasis Singh
Distance

AIR : 29

Manavi Gupta
Classroom

AIR : 30

Anubhav Das
Distance

AIR : 31

Prachi Singh
Classroom

AIR : 32

Japnoor Kaur
Distance

AIR : 33

Ayush Jain
Classroom

AIR : 36

Sukriti Chaudhri
Distance

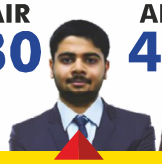
Total Qualified

602

Classroom : **405** | Distance : **197**

ALLEN RESULT: JEE Main-2016

8 in Top 100 | 25 in Top 200 | 65 in Top 500 | 136 in Top 1000

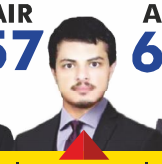
AIR 30

Syamantak Kumar
Classroom

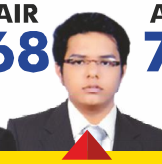
AIR 45

Mudit Surana
Classroom

AIR 47

Utkarsh G. Patel
Classroom

AIR 57

Bhavishya
Distance

AIR 68

Kapil Shobhnani
Classroom

AIR 71

Aman Bansal
Classroom

AIR 90

Ambatwar Ajinkya G.
Distance

AIR 95

Surya Suresh
Distance

AIR-105

Megh V. Thakkar
Classroom

AIR-112

Shashwat Agrawal
Classroom

AIR -127

Rohan Garg
Classroom

AIR -130

Amey Ravindra Patil
Distance

AIR-132

Akash Bhardwaj
Classroom

AIR-137

Rahul Agrawal
Classroom

AIR-145

Sharvik Mital
Classroom

AIR-151

Shashwat Shivam
Distance

AIR-158

Ankit Dhankhar
Classroom

AIR-168

Sukriti Gupta
Distance

AIR-169

Georgi Joseph Boby
Distance

AIR-171

Rushikesh Vitthal
Distance

AIR-177

Koustav Yacha
Classroom

AIR-178

Rahul M. Chanduka
Classroom

26660

Students secured JEE Main

All India Ranks from all Courses of ALLEN

AIR-185

Gavali H. Abhiman
Distance

AIR-190

Atri Dutta
Distance

AIR-197

Vansh J. Chiripal
Classroom

Authenticity of Result : Power of **ALLEN**

TALLENTEX Success Power Session & Rewards Ceremony

(29 November 2015)

SECTION-A : 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.

1. Introducing a man, a woman said, "He is the only son of my mother's mother." How is the woman related to the man ?

(1) Mother (2) Aunt (3) Sister (4) Niece

2. Introducing a man, Neeraj said, “His wife is the only daughter of my wife.” How is Neeraj related to that man?

(1) Father (2) Grandfather

(3) Father-in-law (4) Son

3. If A × B means A is to south of B ; A + B means A is to the north of B ; A % B means A is to the east of B ; A – B means A is to west of B, then in P % Q + R – S, S is in which direction with respect to Q ?

(1) South-West (2) South-East

(3) North-East (4) North-West

4. In a code, CORNER is written as GSVRIV. How can CENTRAL be written in that code ?

(1) DFOUSBM (2) GIRXVEP

(3) GNFJKER (4) None of these

5. Amir was born on Feb 29th of 2012 which was a Wednesday. If he lives to be 101 years old, how many birthdays would he celebrate on a Wednesday?

(1) 3 (2) 4 (3) 5 (4) 1

6. What should come in the place of question mark (?) in the following alpha-numeric series?

C-3, E-5, G-7, I-9, ?, ?

(1) X-24, M-21 (2) K-11, M-13 (3) O-15, X-24 (4) M-18, K-14

7. A clock which gains 10 minutes in 24 hours, is set right at 12 AM. What will be the true time when the clock indicates 5 AM on the following day?

(1) 4: 48 AM (2) 5: 12 AM

(3) 4: 50 AM (4) 5: 15 AM

8. A clock is started at noon. By 10 min past 5, the hour hand has turned through :

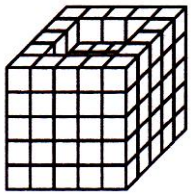
(1) 145° (2) 150° (3) 155° (4) 160°

9. The year next to 1896 that will have the same calendar as that of the year 1896 :

(1) 1902 (2) 1904

(3) 1905 (4) 1908

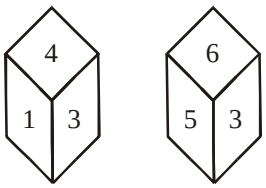
10. Some equal cubes are arranged in the form of a solid block as shown in the adjoining figure. All the visible surfaces of the block (except bottom) are then painted.



How many cubes do not have any of the faces painted?

(1) 27 (2) 32 (3) 36 (4) 40

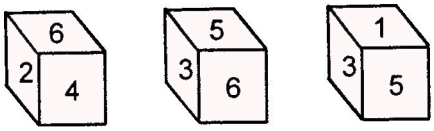
11.

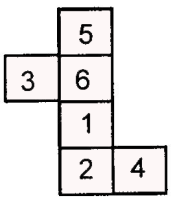


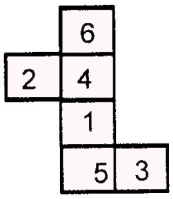
The number on opposite side of the face having number 3 will be :-

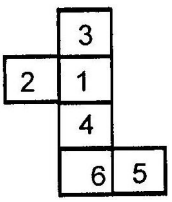
(1) 1 (2) 2 (3) 4 (4) 5

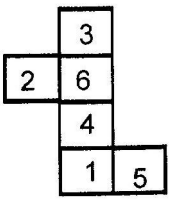
12. The six faces of a cube have been marked with numbers 1, 2, 3, 4, 5 and 6 respectively. This cube is rolled down three times. The three positions are given. Choose the figure that will be formed when the cube is unfolded.



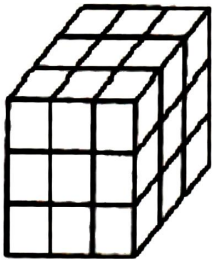
(1) 

(2) 

(3) 

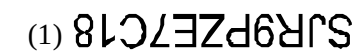
(4) 

13. Little wooden cubes each with a side of one inch are put together to form a solid cube with a side of three inches. This big cube is then painted red all over on the outside. When the big cube is broken up into the original little ones, how many cubes will have paint on two sides only?



(1) 4 (2) 8 (3) 12 (4) 0

14. How does the reflection of SJR9PZE7C18 look like in the water? Choose the right option

(1)  (2) 

(3)  (4) 

15. This question is based upon the information given below. Study the information carefully and then choose the correct alternative to answer the question. Five friends A, B, C, D and E are sitting on a bench.

(1) A is sitting next to B.

(2) C is sitting next to D.

(3) D is not sitting with E.

(4) E is on the left end of the bench.

(5) C is on second position from the right.

(6) A is on the right side of B and to the right side of E.

(7) A and C are sitting together.

Where is A sitting ?

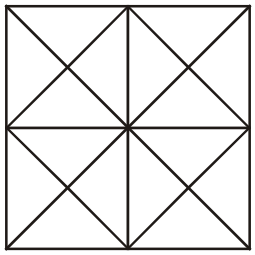
(1) Between B and D (2) Between D and C

(3) Between C and E (4) Between B and C

16. If REASON is coded as 5 and BELIEVED as 7, then what is the code for GOVERNMENT?

(1) 6 (2) 8 (3) 9 (4) 10

17. Count the number of triangles and squares in the given figure



(1) 42 triangles, 8 squares (2) 46 triangles, 8 squares

(3) 44 triangles, 10 squares (4) 44 triangles, 12 squares

18. In the question below, two statements are given followed by two conclusions. Take the given statement to be true despite being at variance with known facts. Find which of the given conclusion(s) logically follow(s) from the given statements.

Statements: All doraemons are nobitas . Some nobitas are jiyans.

Conclusions: I- Some doraemons are jiyans

II- Some jiyans are nobitas

(1) Only I follows (2) Only II follows

(3) Either I or II follows (4) None follows

19. **Statements :**

No giraffe is a leopard

All leopards are kangaroos

All kangaroos are wolfs

Conclusions : (A) All kangaroos can never be giraffes.

(B) All giraffes are definitely wolfs.

(1) If only conclusions (A) follows

(2) If only colclusion (B) follows

(3) If either conclusion (A) or conclusion (B) follows

(4) If both conclusions (A) and (B) follow

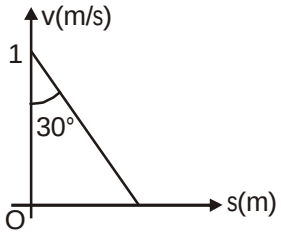
20. If the English letters A to Z are written in a reverse order then what is the fourth letter to the right of 12^{th} letter from the left ?

(1) K (2) J (3) R (4) L

SECTION-B : PHYSICS

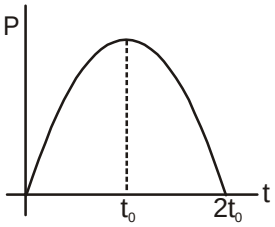
This section contains **20 Multiple Choice Questions**. Each question has four choices (1), (2), (3) and (4) out of which ONLY ONE is correct.

21. The acceleration of the particle when its speed is zero is :

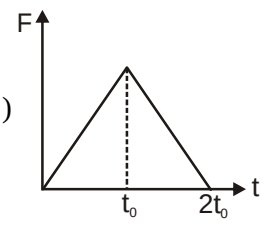


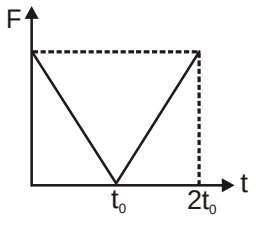
(1) $\frac{1}{\sqrt{3}}$ m/s^2 (2) $\sqrt{3}$ m/s^2 (3) 0 m/s^2 (4) None of the above

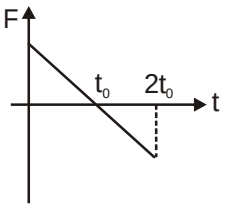
22. The magnitude of the momentum of a particle verying with time is shown in the figure.

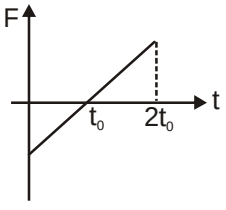


The variation of force acting on the particle is shown as :

(1)


(2)


(3)


(4)


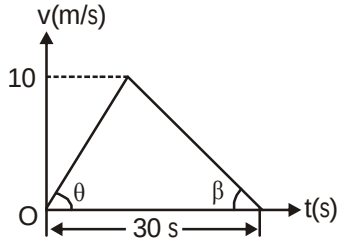
23. A physical quantity Q is calculated according to the expression :

$$Q = \frac{A^3B^3}{C\sqrt{D}}$$

If percentage errors in A, B, C, D are 2%, 1%, 3% and 4% respectively. What is the percentage error in Q?

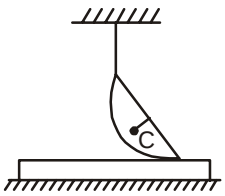
(1) +8% (2) +10% (3) +12% (4) +14%

24. A particle moves in a straight line obeying the v-t graph as shown in the figure. Then cot θ + cot β = ?



(1) 300 (2) 6 (3) 1/3 (4) 3

25. Lower surface of a plank is rough and lies over a rough horizontal surface. Upper surface of the plank is smooth and has a smooth hemisphere placed over it through a light string as shown. After the string is burnt trajectory of CM of sphere is :



(1) circle (2) ellipse (3) straight line (4) none of these

26. A body of mass m has an initial speed v is acted by two force $\vec{F}_1$ and $\vec{F}_2$. After sometime work done by $\vec{F}_1$ is $\frac{1}{2}mv^2$ and speed of the body is 2v. Then, the work done by $\vec{F}_2$ is :

(1) $\frac{3}{2}mv^2$ (2) $-mv^2$ (3) zero (4) mv^2

27. A block hangs freely from the end of a spring. A boy then slowly pushes the block upwards so that the spring becomes strain free. The gain in gravitational potential energy of the block during this process is equal to :

(1) the work done by the boy against the gravitational force acting on the block.

(2) the loss of energy stored in the spring minus the work done by the tension in the spring.

(3) the work done on the block by the boy plus the loss of energy stored in the spring.

(4) the work done on the block by the boy minus the work done by the tension in the spring plus the loss of energy stored in the spring.

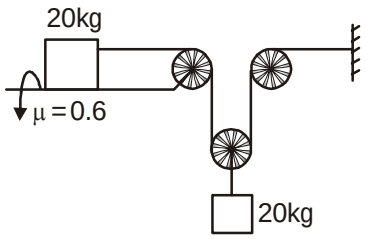
28. Two particles each of mass m move with velocities $v\hat{i}$ and $v\hat{j}$. The speed of the CM of the system of two particles is :

(1) 2v (2) $\sqrt{2}v$ (3) $\frac{v}{\sqrt{2}}$ (4) none of these

29. An upward force F = 50 N acts on a body of mass m = 2 kg. The work done by the upward force when the body has velocity v = 5 m/s is :

(1) 25 J (2) $\frac{50}{3}$J (3) $\frac{125}{3}$J (4) none of these

30. Two blocks of mass 20 kg is connected as shown in the figure then friction on the block exerted by horizontal surface is (system is released from rest) :

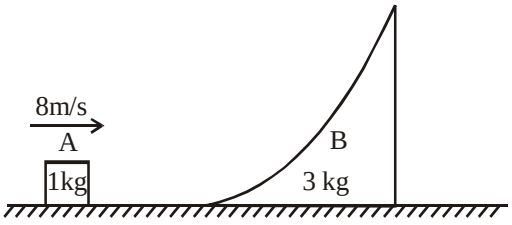


(1)140 N (2)120 N (3) 130 N (4) 100 N

31. Two masses m and M are connected by a light string passing over a smooth pulley. When set free m moves up by 1.4 meters in 2 s. The ratio $\frac{m}{M}$ is :

(1) $\frac{13}{15}$ (2) $\frac{15}{13}$ (3) $\frac{9}{7}$ (4) $\frac{7}{9}$

32. In the arrangement shown, wedge B is at rest & block A is moving towards the wedge. Surface between wedge & ground and surface between block and ground is smooth but surface between block and wedge is rough. After achieving 1 meter height on the wedge, block stops with respect to the wedge due to friction. Then in the process :-



(1) Work done by friction on the block is – 32 J
(2) Work done by the friction on the wedge is 6 J
(3) Total work done by the friction is – 14 J
(4) Work done by normal on the wedge is zero.

33. Initial acceleration of a particle moving in a straight line is a_0 and initial velocity is zero. The acceleration reduces continuously to half in every t_0 seconds. The terminal speed of the particle is:

(1) $a_0t_0\ \ell n(2)$ (2) $\frac{a_0t_0}{\ell n(2)}$ (3) a_0t_0 (4) $\frac{a_0t_0}{2}$

34. An object of mass (m) is located on the horizontal plane at the origin O. The body acquires horizontal velocity v. The mean power developed by the frictional force during the whole time of motion is : (μ = frictional coefficient)

(1) μmgv (2) $\frac{1}{2}\mu mgv$ (3) $\mu mg\frac{v}{4}$ (4) $\frac{3}{2}\mu mgv$

35. A student measures the thickness of human hair by looking at it through a microscope of magnification 100. He makes 20 observations and finds that the average width of the hair is 3.5 mm. What is the estimate on the thickness of the hair?

(1)0.0035 mm (2) 0.035 mm (3) 0.01 mm (4) 0.7 mm

36. The speed of a particle moving along a circle of 'R' depends on the distance covered s as v = as where 'a' is a constant. The acceleration of the particle or

(1) a^2s (2) $a^2s\left(\frac{1+s^2}{R^2}\right)^{1/2}$ (3) $\frac{a^2s^2}{R}$ (4) $\frac{a^2R^2}{S}$

37. A body of mass m, having momentum p, is moving on a rough horizontal surface. It it is stopped in a distance x, the coefficient of friction between the body and the surface is given by:

(1) $\mu = \frac{p^2}{2gm^2x}$ (2) $\mu = \frac{p^2}{2gmx}$

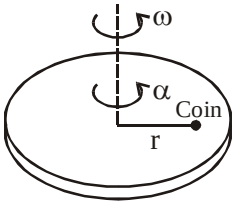
(3) $\mu = \frac{p}{2gmx}$ (4) $\mu = \frac{p}{2gm^2x}$

38. If the angle (θ) between velocity vector and the acceleration vector is $90° < \theta < 180°$. The body is moving on a

(1)Straight path with retardation (2)Straight path with acceleration

(3) Curvilinear path with acceleration (4) Curvilinear path with retardation

39. A coin moves in a circular path on a rough rotating horizontal disk which has an angular acceleration α. Coin does not slip on disk. Mark the **INCORRECT** statement :-



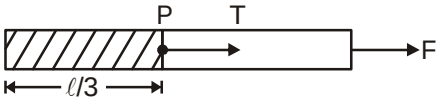
(1) Power delivered by the friction on the coin is positive.

(2) Power delivered by centripetal force on the particle is zero.

(3) Work done by the contacting frictional force on the system (disc + surface) is negative.

(4) Power is delivered to coin by tangential force only

40. A smooth uniform rope is dragged by a force F on a horizontal surface. The ratio of tension T at P and force F is :



(1) $\frac{1}{2}$ (2) $\frac{2}{3}$ (3) $\frac{1}{3}$ (4) None of these

SECTION-C : CHEMISTRY

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

41. In Bohr's model of the hydrogen atom-

(1) Velocity of electron in an orbit is independent of mass of electron.

(2) Radius of an orbit is directly proportional to **Z** of Hydrogen like species.

(3) The angular momentum of the electron in an orbit is an integral multiple of $h/4\pi$.

(4) The magnitude of potential energy of an electron in any orbit is less than its kinetic energy.

42. One mole mixture of FeO & Fe_3O_4 containing equal moles of each, on reaction with excess of O_2 gives n-moles of Fe_2O_3 . "n" is -

(1) 1 (2) 2 (3) 2/3 (4) 1/3

43. Find the minimum energy(approximately) of a photon which when strikes a metal plate of work function 2eV, ejects a photoelectron having the wavelength exactly equal to the wavelength of an electron in the third energy level of Li^{2+} :

(1) 13.6 eV (2) 15.6 eV (3) 124.4 eV (4) 1244 eV

44. Select the **CORRECT** statement :

(1) Ratio of gm/litre & % w/v of a solution is same for any solute

(2) Ratio of % w/v and molarity of a solution is independent of solute substance.

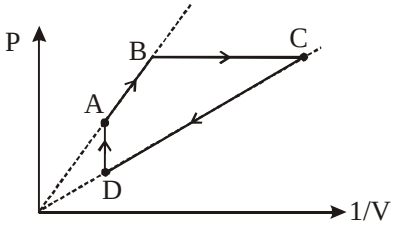
(3) Ratio of % w/v and molarity of a solution depends on solvent substance

(4) Ratio of molarity and molality is one if solvent is water

45. Which of the following pair of elements are chemically most similar ?

(1) Zr, Hf (2) Cr, Bi (3) Be, Rn (4) Br, Sn

46. For the following process ABCD, involving fixed moles of ideal gas select the **CORRECT** statement



Line BC is parallel to X - axis

Line AD is parallel to Y - axis

(1) $T_A > T_B = T_C > T_D$ (2) $T_A = T_B > T_C = T_D$

(3) $T_A = T_B < T_C = T_D$ (4) $T_A < T_B = T_C < T_D$

47. Which of the following aqueous solutions of H_2SO_4 has 4.9g of H_2SO_4 ?

Solution-I : 500 mL of 0.1 M H_2SO_4 (d = 1.5 g mL^{-1})

Solution-II : 250 mL solution of density 2 g mL^{-1} which is 49% $\frac{w}{w}$ H_2SO_4

Solution-III : 10 g solution which is 49% w/w H_2SO_4

Solution-IV : 500 g Solution having molality 0.1 mol kg^{-1} H_2SO_4

(1) I, III, IV (2) I, II, III, IV

(3) I, III (4) II, IV

48. Calculate compressibility factor for the He gas at 100 K & 1atm.

[b for He = 800cm^3/mol ; R = 0.08 atm-L/mol-K]

(1) 101 (2) 110 (3) 1.01 (4) 1.1

49. In periodic table electron affinity of oxygen atom is higher as compared to :-

(1) Fluorine (2) Chlorine

(3) Sulphur (4) Carbon

50. Alveoli are tiny sacs in the lungs whose average diameter is 5×10^{-10}m. An oxygen molecule is trapped in a sac. The uncertainty in the velocity of oxygen molecules within a sac is approximately :

[Take h = 6.6×10^{-34} J-s]

(1) 2m/s (2) 3 m/s (3) 1m/s (4) 4m/s

51. Which of the following is the correct order of ionisation energy ?

(1) $O^{2-} < F^- < Na^+ < Mg^{2+}$ (2) $F^- < O^{2-} < Na^+ < Mg^{2+}$

(3) $O^{2-} < Na^+ < F^- < Mg^{2+}$ (4) $Mg^{2+} < Na^+ < F^- < O^{2-}$

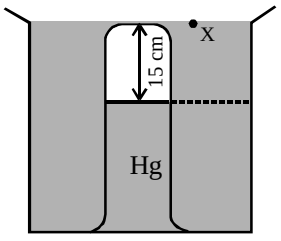
52. Which of the following orbital has (xy) nodal plane?

(1) p_z (2) p_y (3) p_x (4) $d_{x^2-y^2}$

53. Out of N_2O, SO_2, $I_3^{\oplus}$, I_3^-, H_2O, NO_2^-, N_3^- the linear species are :

(1) NO_2^-, $I_3^{\oplus}$, H_2O (2) N_2O, $I_3^{\oplus}$, N_3^- (3) N_2O, I_3^-, N_3^- (4) N_3^-, I_3^-, NO_2^-

54. A glass tube with a sealed end is completely submerged in a vessel with Hg vertically. The air column is 15 cm long (As shown in figure). To what height must the upper end be raised above point X, so that the level of Hg inside the tube is at level of Hg in the vessel (Take Atmospheric pressure = 75 cm of Hg.)



(1) 12 cm (2) 15 cm (3) 18 cm (4) 3 cm

55. Which of the following molecule has zero dipole moment ?

(1) SO_2 (2) ClF_3 (3) PCl_2F_3 (4) None of these

56. In which of the following species, central atom is sp^3 hybridised ?

(1) $\dot{C}H_3$ (2) BF_3 (3) H_2O (4) CO_2

57. An unknown gas behaves ideally at 540K in low pressure region, then calculate the maximum temperature (in K) at which it can be liquified -

(1) 160 K (2) 540 K (3) 1440 K (4) 1822.5 K

58. If average bond energy of P-Cl is x kJ/mol. Then how many number of bonds will have bond energy greater than x in PCl_5 ?

(1) 5 (2) 0 (3) 3 (4) 2

59. If the mean free path is 100 Å at one bar pressure then its value at 5 bar pressure, if volume is kept constant, will be :

(1) 100 Å (2) 20 Å (3) 10 Å (4) 500 Å

60. How many kg of $CaCO_3$ (Mol wt = 100 gm/mole) is needed to produce 336 kg of CaO (Mol wt = 56 gm/mole) according to the reaction :

$CaCO_3(s) \rightarrow CaO(s) + CO_2(g)$

The % yield of reaction is 60%

(1) 10^3 (2) 10^2 (3) 900 (4) 800

Attempt any one of the Section-D (Biology) OR Section-E (Mathematics)

SECTION-D : BIOLOGY

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

61. If in dicot stem position of vascular cambium and cork cambium is interchanged then what will be the position of cork ?

(1) Between wood and secondary phloem

(2) Between phellogen and wood

(3) Between periderm and secondary phloem

(4) Between vascular cambium and wood

62. Which of the following statements is correct ?

(1) In unicellular organisms, growth & reproduction are mutually exclusive events

(2) Self- consciousness is the property of all living organisms

(3) Metabolism is a defining feature of living organisms without exception

(4) Reproduction is a defining feature of living organisms without exception

63. Read the following four statements (A-D) :-

(A) Centrioles and ribosomes are not considered as compartments due to lack of membrane

(B) Some large integral proteins form channels or tunnels, while glycoproteins are found on outer surface of membrane.

(C) Polar molecules can not cross the membrane by simple diffusion

(D) Plasma membrane and organelle membrane show similarity in their basic structure

Which of the above statements are correct ?

(1) Only (B) & (C) (2) Only (A) & (D)

(3) All (A), (B), (C) & (D) (4) Only (B)

64. Which cells of connective tissue are also known as cart-wheel cells ?

(1) Adipose cells (2) Mast cells

(3) Plasma cells (4) Mesenchymal cells

65. Which of the following is common feature of *Struthio* and *Pavo* ?

(1) Pneumatic bones (2) Free caudal vertebrae

(3) Well developed wings (4) Glandular skin

66. In which of the following group of plants, leaves have bulliform cells on adaxial epidermis ?

(1) All Dicots (2) All monocots (3) Grasses (4) Sunflower

67.

Common Name	Genus	Family	Order	Class
↓	↓	↓	↓	↓
Mango	*Mangifera*	'A'	'B'	Dicotyledonae

Choose the correct option regarding 'A' and 'B' from the following :-

(1) A = Poaceae B = Poales (2) A = Anacardiaceae B = Sapindales

(3) A = Hominidae B = Primata (4) A = Muscidae B = Diptera

68. Which of the following statement is not correct ?

(1) Areolar connective tissue located beneath the skin

(2) Adipose tissue is another type of loose connective tissue located mainly beneath the skin

(3) The excess of nutrient which are not used immediately are converted into fats and are stored in areolar tissue

(4) Fibres & fibroblasts are commonly packed in the dense connective tissue.

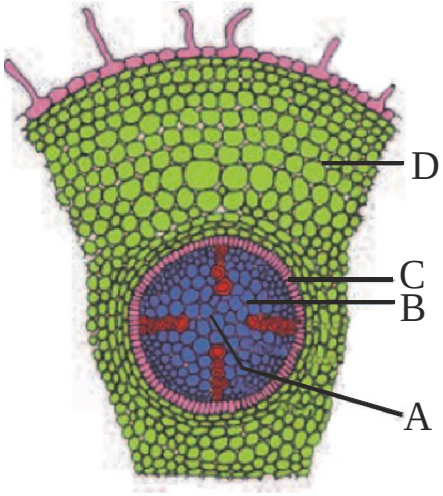
69. Match the name of the animal (Column–I) with one characteristic (Column–II) and the phylum/class (Column–III) to which it belongs–

Column–I	**Column–II**	**Column–III**
(1) *Ornithorhynchus*	Oviparous	Marsupials
(2) *Chelone*	4 chambered heart	Reptiles
(3) *Aptenodytes*	Beak present	Aves
(4) *Macropus*	Poikilothermous	Eutherian mammals

70. Pigments are important for many biological activities. Which of the following cellular structures contain pigments ?

(1) ER, Golgi body, Leucoplast
(2) Vacuole, Chromoplast, Leucoplast
(3) Chloroplast, Chromoplast, Leucoplast
(4) Chromoplast, Vacuole, Chloroplast

71.



Above figure is the transverse section of dicot root. Among the layers labelled as A,B,C & D, which layer has a deposition of water impermeable waxy material ?

(1) D (2) C (3) B (4) A

72. If a human cell and a yeast cell continue their cell cycles for the duration of 48 hours, then which of the following ratio regarding number of cell cycles completed, is correct ?

(1) Human : yeast : : 1 : 32
(2) Human : yeast : : 16 : 1
(3) Human : yeast : : 1 : 16
(4) Human : yeast : : 8 : 1

73. In which phase of mitosis, chromosomes lose their individuality ?

(1)Prophase
(2) Metaphase
(3)Anaphase
(4) Telophase

74. Which one among the following is called fighting fish?

(1) *Clarias*
(2) *Betta*
(3) *Pterophyllum*
(4) *Exocoetus*

75. In plants, epidermal cells are : -

(1) parenchymatous
(2) collenchymatous
(3) sclerenchymatous
(4) meristematic

76. Platyhelminthes, Annelida, Arthropoda and Mollusca phyla are :-

(1) All coelomate
(2) Show metamerism
(3) Having organ level of organisation
(4) Bilateral symmetrical

77. Amount of DNA in Metaphase I of meiosis is denoted as $\frac{T}{2}$. What will be the amount of DNA in Anaphase I, Anaphase II, Prophase I and G_1 phase of interphase ?

	Anaphase I	Anaphase II	Prophase I	G_1 Phase
(1)	$\frac{T}{2}$	$\frac{T}{4}$	$\frac{T}{2}$	T
(2)	$\frac{T}{4}$	2T	$\frac{T}{2}$	T
(3)	$\frac{T}{2}$	$\frac{T}{4}$	$\frac{T}{2}$	$\frac{T}{4}$
(4)	$\frac{T}{2}$	T	$\frac{T}{2}$	$\frac{T}{4}$

78. Select incorrect statement from the following :

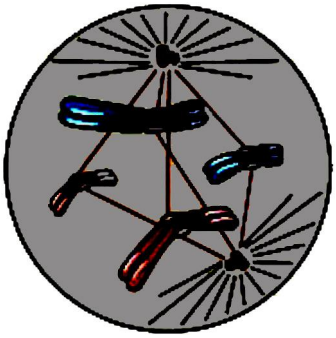
(1) In vertebrates notochord is replaced by cartilaginous or bony vertebral column

(2) In cephalochordates, notochord extended from head to tail region and persistent throughout life

(3) Protochordates are exclusively marine

(4) Notochord is present in the tail of adult in urochordata

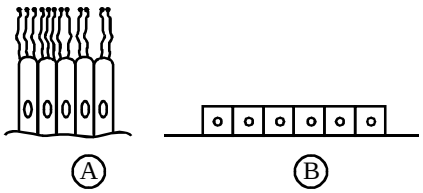
79.



Identify the above figure and choose the correct option regarding this from the following :-

(1) Metaphase-I (2) Anaphase-I (3) Transition to metaphase (4) Anaphase

80. Observe the diagrams of epithelia carefully and choose the correct answer from the options given below-



	Position in body		**Function/s**	
	A	B	A	B
1	Trachea, Fallopian tubes	PCT of nephron	Diffusion	Absorption
2	Fallopian tubes, Ependyma	Thyroid vesicles	Movement of ovum, and CSF	Secretion
3	Fallopian tubes, Ependyma	Thyroid vesicles	Movement of dust	Absorption
4	Bronchioles, Trachea	Thyroid vesicles	Movement of dust	Secretion, Absorption

SECTION-E : MATHEMATICS

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

61. If $S_n = \frac{1}{1^2.3^2} + \frac{2}{3^2.5^2} + \frac{3}{5^2.7^2} + \frac{4}{7^2.9^2} + ...$ upto n terms.

If $S_n = \frac{an^2 + bn}{(cn+1)^2}$ Then (a + b + c) equal to

(1) 2 (2) 3 (3) 4 (4) 5

62. Quadratic equation with rational coefficients, having one root $2+\sqrt{3}$ is :

(1) $x^2 + 4x + 1 = 0$ (2) $x^2 - 4x + 1 = 0$ (3) $x^2 + 4x + 2 = 0$ (4) $x^2 - 4x - 2 = 0$

63. If α,β are roots of $9x^2 - 11x + 1 = 0$ then value of $\frac{1}{(9\alpha-11)^2} + \left(\frac{11\beta-1}{9}\right)$ is-

(1) $\frac{56}{47}$ (2) $\frac{67}{56}$ (3) $\frac{81}{67}$ (4) $\frac{103}{81}$

64. Let Z be a complex number with nonzero imaginary part such that

$(2Z + 1)(3Z + 1)(5Z + 1)(30 Z + 1) = 10$ then $\left(\frac{\text{sum of all values of Z}}{\text{product of all values of Z}}\right)$ is

(1) $-\frac{32}{9}$ (2) $\frac{32}{9}$ (3) $\frac{9}{32}$ (4) $-\frac{9}{32}$

65. If $\sin A + \sin B = \frac{1}{3}$ and $\cos A + \cos B = \frac{1}{2}$, then the value of $3(\sin 2A + \sin 2B) + 6\sin(A+B)$ is-

(1) 1 (2) 3 (3) 5 (4) 7

66. If the equations of the three sides of a triangle are $2x + 3y = 1$, $3x - 2y + 6 = 0$ and $x + y = 1$, then the orthocentre of the triangle lies on the line

(1) $13x + 13y = 1$ (2) $169x + 26y = -178$

(3) $169x + y = 0$ (4) none of these.

67. Complete set of values of m, for which point (m,1) lies in smaller segment formed by circle $x^2 + y^2 - 3x + 1 = 0$ and line $2x - y = 2$, is-

(1) (1,2) (2) $\left(\frac{3}{2},2\right)$ (3) $\left(1,\frac{3}{2}\right)$ (4) $(-\infty,1)\cup(2,\infty)$

68. Number of integral solutions of the inequation $x^4 - 13x^2 + 36 \le 0$ is-

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

69. Given that $x \in R$ and $x \neq 3$ such that $x^2 + 4\left(\frac{x}{x-2}\right)^2 = 45$, then the value of $\frac{(x-2)^2(x+3)}{2x-3}$ can be-

(1) 4 (2) 8 (3) 16 (4) 32

70. If the sum of the first 11 terms of an arithmetic progression equals to the first 19 terms, then the sum of its first 30 terms, is

(1) equal to 0 (2) equal to – 1 (3) equal to 1 (4) non unique

71. The length of a chord of contact of point (4,4) with respect to the circle $x^2 + y^2 - 2x - 2y - 7 = 0$ is

(1) $\frac{3}{\sqrt{2}}$ (2) $3\sqrt{2}$ (3) 3 (4) 6

72. Let P(6,0) and Q(12,0) be two fixed points and T(h,k) (where $h.k \neq 0$) be a variable point in x-y plane PT and QT meets the y-axis at points R and S respectively and PS meets OT at M (where O is origin). For different values of h and k, the line RM always passes through-

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

73. Let S is the region on xy-plane containing the points (x,y) which satisfy the system of inequalities $3x - 2y - 6 \leq 0$, $x + y - 7 \leq 0$ and $x \geq 1$, then area of S is-

(1) $\frac{45}{4}$ (2) $\frac{45}{2}$ (3) more than $\frac{45}{2}$ (4) less than $\frac{45}{4}$

74. If 'm' is the slope of the line which makes isosceles triangle with the lines whose equations are $2x - y = 0$ and $y - x + 5 = 0$, then

(1) $m^2 - 2m - 3 = 0$ (2) $3m^2 + 2m - 3 = 0$ (3) $3m^2 + 2m - 1 = 0$ (4) $3m^2 - 2m - 3 = 0$

75. If a, b, c are 3 different numbers in A.P. then (a + 2b –c) (2b + c –a)(c + a –b) equals

(1) $\frac{1}{2}abc$ (2) abc (3) 2 abc (4) 4 abc

76. If m & M denotes the minimum and maximum value of $|2z + 1|$ respectively, where $|z - 2i| \leq 1$ then $(m + M)^2$ is equal to

(1) 17 (2) 34 (3) 51 (4) 68

77. Suppose that a curve C passes through the point (3, 2) and has the property that if the normal line is drawn at any point on the curve then the intercept on positive y-axis of the normal line is always 6. The curve C is a circle with radius

(1) 3 (2) 4 (3) 5 (4) 6

78. If $\sec x + \cos x = 2$, then value of $(\sec x)^6 + (\cos x)^6$, is-

(1) 0 (2) 1 (3) 2 (4) 8

79. The locus of the point z which moves such that $2\arg\left(\frac{z-i+3}{z+3i-1}\right) = \pi$ is -

(1) a straight line passing through the points (3 – i) and (–1 + 3i)

(2) a straight line passing through the points (–3 + i) and (1 – 3i)

(3) a semi-circle passing through the points (–3 – i) and (1 – 3i)

(4) a part of circle with centre at the point (–1 – i) and radius $2\sqrt{2}$.

80. The number of real tangents that can be drawn from (2, 2) to the circle $x^2 + y^2 - 6x - 4y + 3 = 0$ is

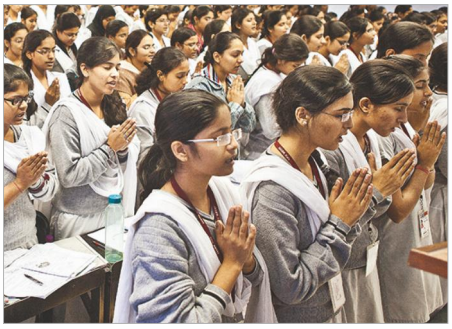
(1) 0 (2) 1 (3) 2 (4) 3

SPACE FOR ROUGH WORK

ALLEN System

Orientation Session

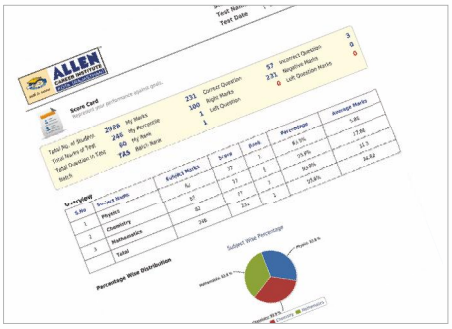
Classroom Session



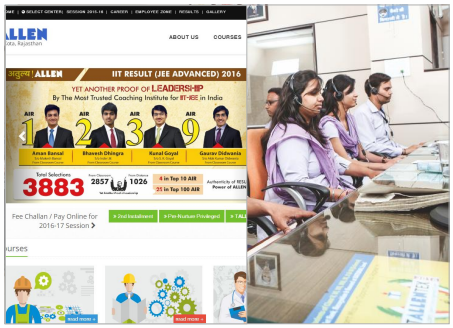
Prarthana

Open Session & Medal Distributions

Regular Test



Test Result - (CSAT)



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ALLEN Students Bring Glory to Nation through their International Achievements-2016

International Chemistry Olympiad

48th International Chemistry Olympiad
IChO-2016
TBILISI, GEORGIA

Silver Medal
SHARVIK MITTAL

International Physics Olympiad

47th International Physics Olympiad
IPhO-2016
SWITZERLAND

Silver Medal
DIVYANSH GARG
(Classroom)

International Biology Olympiad

27th International Biology Olympiad
IBO-2016
HANOI, VIETNAM

Gold Medal
LAJJA BEN PATEL
(Classroom)

Silver Medal
VIDUSHI VARSHNEY
(Classroom)

International Earth Science Olympiad

10th International Earth Science Olympiad
(IESO) 2016
JAPAN

Silver Medal
AMARJIIT VIKAS PANDE
(Classroom)

ALLEN Results : Pre-Nurture & Career Foundation (2015-16)

STAGES OF OFFICIAL OLYMPIADS MENTORED BY HBCSE

IJSO

STAGE 1
35 Selections in NSEJS
STAGE 2
16 Selections in INJSO
STAGE 3
3 Selections in OCSC
NISHANT ABHANGI
AYUSHMAN TRIPATHY
GAURANG
selected for IJSO 2016

International Junior Science Olympiad

IBO

STAGE 1
3 Selections in NSEB
STAGE 2
3 Selections in INBO
STAGE 3
3 Selections in OCSC
VIDUSHI VARSHNEY
Got Silver Medal In IBO 2016

International Biology Olympiad
JEEVESH is the youngest in the country so far to qualify stage-1 of IBO

IChO

STAGE 1
1 Selection in NSEC
DHYEY SANKALP GANDHI
is the youngest in the country so far to qualify stage-1 of IChO

International Chemistry Olympiad

IOAA

STAGE 2
RAYYAN SHAHID
selected in INJAO 2016

International Astronomy Olympiad Junior

IMO

STAGE 1
190 Selections
from Gujarat & 11 from Maharashtra for RMO through PRE RMO.
3 STUDENTS SECURED 100% MARKS
STAGE 2
14 Selections in RMO for INMO

International Maths Olympiad

IESO

STAGE 1
NET – 6 Selections Conducted by Geological Society of India

International Earth Science Olympiad

IJSO

IJSO-2015

12th International Junior Science Olympiad
(IJSO) 2015
KOREA

Gold Medal
BHASKAR GUPTA
(Classroom)

Gold Medal
LAKSHYA SHARMA
(Classroom)

Silver Medal
VIDUSHI VARSHNEY
(Classroom)

International Junior Science Olympiad

APTITUDE IN SCIENCE / MATHEMATICS

NSO

571 Selections in NSO (Level-1)

NISHANT ABHANGI: **AIR-1** (Level-2)

NSO National Science Olympiad

Conducted by Science Olympiad Foundation, New Delhi

STSE 2015

36 Selections for Scholar Certificate

155 Selections for Distinction Certificate

STSE State Talent Search Examination

Conducted by Rajasthan Board of Secondary Education

NSTSE

232 Selections in NSTSE (Level-1)

63 Selections in NSTSE (Level-2)

NISHANT ABHANGI: **AIR-1** (Level-2)

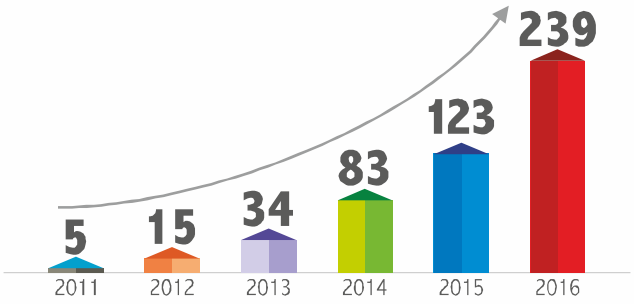
NSTSE National Science Talent Search Examination

Conducted by Unified Council, Hyderabad

NTSE

239 Students Selected From **ALLEN**

NTSE 2016 (STAGE-2)



APTITUDE IN MATHEMATICS

NMTC

274 Selections in NMTC (Prelim)

17 Selections in NMTC (Final)

NMTC National Mathematics Talent Contest

Conducted by Association of Mathematics Teachers of India, Chennai

IMO (SOF)

370 Selections in IMO (Level-1)

IMO International Mathematics Olympiad

Conducted by Science Olympiad Foundation, New Delhi

APTITUDE IN INFORMATION TECHNOLOGY

UCO

140 Selections in UCO (Level - 1)

59 Selections in UCO (Level - 2)

UCO Unified Cyber Olympiad

Conducted by Unified Council, Hyderabad

SCIENTIFIC APTITUDE

BALSHREE HONOUR

14 Selections in Balshree in Local Round Rajasthan-7 | Gujrat-5 Madhya Pradesh-2)

Consist of Plaque, Citation, ₹15000 & Literature set

Conducted by National Bal Bhavan

LANGUAGE PROFICIENCY

TRINITY GESE

38 Selections in TRINITY GESE Distinction : 21 Merit : 17

GESE Grade Examination for Spoken English

Conducted by Trinity College, London

WORKSHOP/CONFERENCES

NMC

9 Selections in NMC Including Ranks 1,2,3 & 4

NMC National Maths Conference

Conducted by Association of Mathematics Teachers of India, Chennai

APTITUDE IN INTELLIGENCE QUATIENT (IQ)

TECHNOTHLON PRELIMS 2015

20 Students (10 Teams) Selected for Techniche

29 Selections for Silver Certificate in Technothlon Prelims

Conducted by IIT Guwahati

Technothlon the international school championship ....Inspiring Young minds!

TECHNICHE 2015

2 Students (1 Team)
KHUSHI TIBAREWAL
STUTI SHAH
won Junior Squad in Techniche

Conducted by IIT Guwahati

Techniche Indian Institute of Technology Guwahati

TECHKRITI

7 Students (Including AIR-1 & AIR-3) Selected in Techkriti

Conducted by IIT Kanpur

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Answer Key

TALLENTEX 2017
ALLEN'S Talent Encouragement Exam

Class- 11th (XI)

Held on : 09 October 2016

Mental Ability	
Q. No.	Ans.
1	4
2	3
3	2
4	2
5	2
6	2
7	1
8	3
9	4
10	1
11	2
12	4
13	3
14	4
15	4
16	3
17	3
18	2
19	1
20	1

Physics	
Q. No.	Ans.
21	3
22	3
23	4
24	4
25	3
26	4
27	3
28	3
29	3
30	4
31	1
32	3
33	2
34	2
35	2
36	B
37	1
38	4
39	3
40	3

Chemistry	
Q. No.	Ans.
41	1
42	1
43	2
44	1
45	1
46	2
47	3
48	4
49	4
50	1
51	1
52	1
53	3
54	3
55	4
56	3
57	1
58	3
59	1,2
60	1

Biology	
Q. No.	Ans.
61	2
62	3
63	3
64	3
65	1
66	3
67	2
68	3
69	3
70	4
71	2
72	3
73	4
74	2
75	1
76	4
77	3
78	4
79	3
80	2

Mathematics	
Q. No.	Ans.
61	2
62	2
63	4
64	1
65	1
66	2
67	3
68	4
69	3
70	1
71	2
72	3
73	1
74	4
75	4
76	4
77	3
78	3
79	4
80	1

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