The PathShala

The PathShala

MOCK Test (Class 10th Going to 11th)

Time : 90:00 Min | Beware Of Negative Marking | **Max. Marks : 400**

| Sample Paper For JEE |

Test Syllabus

MAT : Cube and Dice, Calendar, Clock, Direction–Sense Test, Blood Relation, Series Completion, Inserting Missing Character, Coding–Decoding, Alphabet Test, Seating–Arrangement

Physics : Electricity, Magnetic Effects of Electric Current

Chemistry : Chemical Reactions and Equations, , Acids, Bases and Salts, Metals and Non–Metals

Mathematics : Real Numbers, Polynomials, Linear Equation in two Variables, Arithmetic Progression.

INSTRUCTIONS

1. Fill up the particulars of Your name, Registration No, Name of School, Mobile No and Test Date etc.

2. This Question paper consists of three sections. Section A, Section B and Section C.

Section	*Subject*	*Question*	*Marking Schemes of each correct answer.*	
			Correct Answer	*Wrong Answer*
Section A	MAT	Q 1 to Q 40	+4	-1
Section B	Physics	Q 41 to Q 60	+4	-1
Section C	Chemistry	Q 61 to Q 80	+4	-1
Section D	Mathematics	Q 81 to Q 100	+4	-1

Candidate ID : ⬜⬜⬜⬜⬜⬜⬜

Name of the Student : ....

Name of the School in which you study : ....

....

Student Mobile No : ....Test Date ....

Invigilator Signature   **Student Signature**

....

Section – A
MAT
(Q 1 to Q 40)

1.

4 C	2 B	3 A
28 A	?	45 B
7 C	5 A	15 B

(A) 10 C   (B) 12 C

(C) 13 C   (D) 7 C

2.

I:
	6	
9	117	15
	3	

II:
	9	
8	?	9
	6	

III:
	9	
5	112	8
	8	

      I   II   III

(A) 57   (B) 46

(C) 129   (D) 50

3. Find the missing number in the following series:

2160, 360, 72, ?, 6, 3

(A) 54   (B) 36

(C) 18   (D) 16

Directions (4 –5): Choose the option that has the missing number/ term in the series:

4.   4   10   22   46   ?   190

(A) 56   (B) 16

(C) 76   (D) 94

5.   7   18   36   ?   93   132

(A) 92   (B) 83

(C) 55   (D) 61

6. From the given alternate words, select the word which cannot be formed using the letters of the word "CHEMOTHERAPY"

(A) MOTHER   (B) THERAPY

(C) PANTHER   (D) REMOTE

7. If BLOOD is coded as "EIRLG", then PERIOD will be coded as
   (A) SBURAF   (B) SBUFRA
   (C) SUFBAR   (D) RBUFSA

8. Arrange the following words in order of their entry in the dictionary:
   (1) Live   (2) Litter
   (3) Little   (4) Literary
   (A) 4, 3, 2, 1   (B) 4, 2, 3, 1
   (C) 3, 4, 2, 1   (D) 3, 2, 4, 1

9. Pointing to a photograph, a man said, " I have no brother or sister but that man's father is my father's son". Whose photograph was it?
   (A) his own   (B) his son's
   (C) his father's   (D) none of these

10. A man said to lady, "your mother's husband's sister is my aunt." How is the lady related to the man "?
    (A) daughter   (B) grand daughter
    (C) mother   (D) sister

11. If 'ish lto inm' stands for 'neat & tidy', qpr inm sen' stands for 'small but neat' and 'hsm sen rso' stands for 'good but erratic', what would 'but' stand for?
    (A) inm   (B) qpr
    (C) sen   (D) hsm

For questions (12 – 13): Which one of the letter/s replaces the question mark (?)

12. A C F J ? U
    (A) L   (B) M
    (C) N   (D) O

13. KVZ, MOX, OIV, QET, ?
    (A) SUK   (B) SAQ
    (C) SDR   (D) SAR

14. If DINESHKU is written as 82517493 in the coded language, SHKNUDI will be written as
    (A) 7453298   (B) 7495238
    (C) 7493582   (D) 7495382

15. How many such latters are there in the word 'CREATIVE' which have as many letters between them in the word as in the alphabets?
    (A) 1   (B) 2
    (C) 3   (D) 4

16. If the 1ˢᵗ half of the alphabets is written in the reverse order, which letter will be exactly middle between the 9ᵗʰ letter from the left and the 10ᵗʰ from the right end?

(A) B (B) A

(C) D (D) None of these

17. If the word 'FLOURISH', all the vowels are first arranged alphabetically and then all the consonants are arranged alphabetically and then all the vowels are replaced by the previous letter and all the constants are replaced by the next letter from English alphabets. Which letter will be third from the right end?

(A) I (B) S

(C) M (D) V

18. How many such pairs of letters are there in the written JUMPING each of which has as many letters, between them in the word as in the English alphabet?

(A) None (B) One

(C) Two (D) Three

19. A dog is taken out every evening by the owner whose house faces East. They walk 200 m West, then 500 m. in South direction. Which direction should they take to reach home?

(A) North-East (B) North

(C) North-West (D) South-East

20. Find the missing number

5	6	7	8	9
24	35	48	63	?

(A) 37 (B) 18

(C) 92 (D) 80

Directions (Q. Nos. 21-22) In (via) quest ion given below, an Int folded dice is given in the left side while in the right side four answer choices air given in the from of complete dices. You are required to select the correct answer choice(s) which is/are formed by folding the unfolded disc.
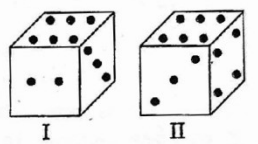
21.

(A) only I (B) II and III

(C) I, II and IV (D) I, II, III and IV

22.

(A) only I (B) I and III
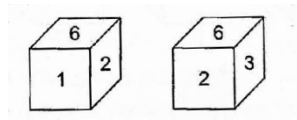
(C) II and III (D) I, II and IV

---

23. From the given two positions of a single disc, find the number of dots at the bottom face, if the top face has 3 dots.

(A) 1   (B) 5

(C) 6   (D) 1/5

24. Two positions of a cube are given. Based on them find out which number is found opposite number 1 in the given cube.

(A) 1   (B) 2

(C) 3   (D) 4

25. If day before yesterday was Saturday, then what day of the week will it be on day after tomorrow?
(A) Friday   (B) Thursday
(C) Wednesday   (D) Tuesday

26. Which of the following is a leap year?
(A) 2800   (B) 1800
(C) 2600   (D) 3000

27. On 6th march, 2005 Monday falls, What day of the week was it on 6th March, 2004?
(A) Sunday   (B) Thursday
(C) Tuesday   (D) Saturday

28. If the Republic day of India in 1980, falls on Saturday, X was born on March 3, 1980 and Y is older to X by four days, then Y's birthday fell on
(A) Thursday   (B) Friday
(C) Wednesday   (D) None of these

29. At what time between 9 and 10 o'clock will the hands of a watch be together?
(A) 45 min past 9   (B) 50 min past 9
(C) $49\frac{1}{11}$ min past 9   (D) $48\frac{2}{11}$ min past 9

30. At what angle the hands of a clock are inclined at 15 min past 5?
(A) $72\frac{1}{2}^{\circ}$ (B) $67\frac{1}{2}^{\circ}$

(C) $58\frac{1}{2}^{\circ}$ (D) 64°

31. A watch is one minute slow at 1 : 00 pm on Tuesday and 2 min fast at 1 : 00 pm on Thursday. When did it show the correct time?
    (A) 1:00am on Wednesday
    (B) 5:00 am on Wednesday
    (C) 1:00 pm on Wednesday
    (D) 5:00 pm on Wednesday

32. Village Chimur is 20 km to the North of village Rewa. Village Rahate is 18 km to the East of village Rewa. Village Angne is 12 km to the West of Chimur. If Sanjay starts from village Rahate and goes to village Angne, in which direction is he from his starting point?
    (A) North
    (B) North-West
    (C) South
    (D) South-East

33. From a point, Rajneesh started walking East and walked 35 m. He, then turned on his right and walked 20 m and he again turned to right and walked 35 m. Finally, he turned his left and walked 20 m and reached his destination. Now, how far is he from the starting point?
    (A) 50 m
    (B) 55 m
    (C) 20 m
    (D) 40 m

34. A rat runs 20 m towards East and turns to right, then runs 10 m and turns to right, runs 9 rn. and again turns to left, runs 5 m. and then turns to left, runs 12 m and finally turns to left and runs 6 m, Now, which direction is the rat facing?
    (A) East
    (B) North
    (C) West
    (D) South

35. Two buses start from the opposite points of a main road, 150 km apart. The first bus runs for 25 km and takes a right turn and then runs for 15 km. It then turns left and runs for another 25 km and takes the direction back to reach the main road. In the mean time, due to the minor break down the other bus has run only 35 km along the main road. What would be the distance between the two buses at this point ?
    (A) 65 km
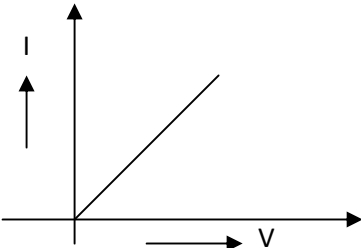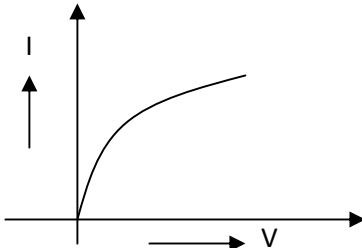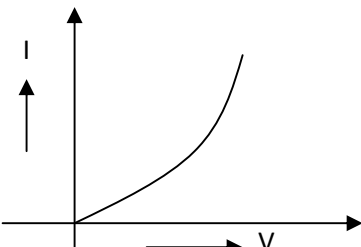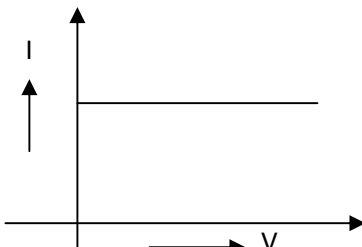   (B) 80 km
    (C) 75 km
    (D) 85 km

Directions (Q. Nos. 36-40) Study the following information carefully to answer the questions given below.
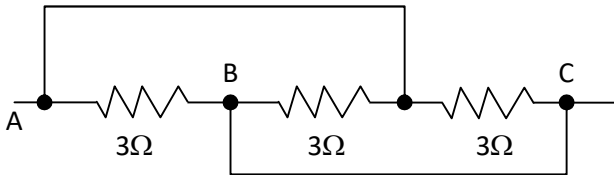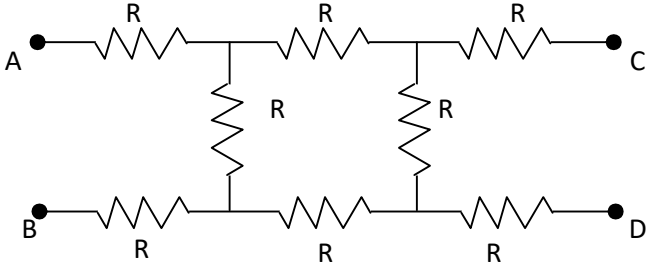
P, T, V, R, M, D, K and W are sitting around a circular table facing the centre. V is second to the left of T. T is fourth to the right of M. D and P are not immediate neighbours of T. D is third to the right of P. W is not an immediate neighbour of P. P is to the immediate left of K.

36. Who is second to the left of K?
    (A) P
    (B) R
    (C) M
    (D) W

37. Who is to the immediate left of V?
    (A) D
    (B) M
    (C) W
    (D) Data inadequate
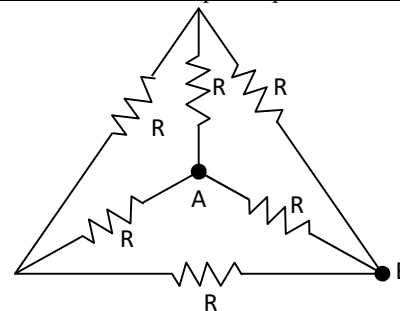
38. Who is the third to the right of V?
    (A) T   (B) K
    (C) P   (D) R

39. What is R's position with respect to V?
    (A) Third to the right   (B) Fifth to the right
    (C) Third to the left   (D) Second to the left

40. Four of the following five are alike in a certain way based on their positions in the above sitting arrangement and so form a group. Which of the following does not belong to that group?
    (A) DW   (B) TP
    (C) VM   (D) RD
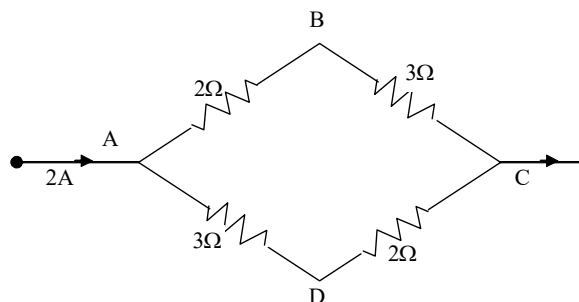
Section – B
PHYSICS
(Q 41 to Q 60)

41. Resistance of a metallic conductor:
(A) increases with temperature
(B) decreases with temperature
(C) remain same with temperature
(D) becomes zero at high temperature

42. A wire is broken in four equal parts. A packet is formed by keeping the four wires together. The resistance of the packet in comparison to the resistance of the wire will be:
(A) equal
(B) $\frac{1}{4}$th
(C) $\frac{1}{8}$th
(D) $\frac{1}{16}$th

43. If the current is flowing through a 10 Ω resistor, then indicate in which case maximum heat will be generated.
(A) 5 A in 2 mins
(B) 4 A in 3 mins
(C) 3A in 6 mins
(D) 2A in 5 mins

44. The direction of magnetic field is
(A) tangent to magnetic lines of force at all points
(B) tangent to magnetic lines of force near poles only
(C) tangent to magnetic lines of force inside the magnet only
(D) none of the above

45. V – I characteristics of four circuits are shown. Which of these is ohmic.

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

46. A current flows in a conductor from east to west. The direction of the magnetic field at a points above the conductor is.
(A) Towards north
(B) Towards south
(C) Towards east
(D) Towards west

47. What is the other name of potential difference?
(A) Amperage
(B) wattage
(C) Voltage
(D) potential energy

48. Which statement is/are correct?
(I) An ammeter is connected in series in a circuit and a voltmeter is connected in parallel.
(II) An ammeter has a high resistance.
(III) A voltmeter has a low resistance.
(A) 1, 2, 3   (B) 1, 2   (C) 2, 3   (D) 1

49. In case of four wires of same materials, the resistance will be minimum when its length and diameter are respectively
(A) L and D   (B) 2L and D   (C) L/2 and 2D   (D) 2L and D/2

50. Certain substances loose their electrical resistance at very low temperature. These are called
(A) Good conductors   (B) semi conductors
(c) super conductors   (D) Dielectrics

51. Find the effective resistance between points A and C.
(A) 3Ω
(B) 6Ω
(C) 1Ω
(d) zero

52. If $R = 10\ \Omega$, find the equivalent resistance between A and D,
(A) $40\ \Omega$
(B) $30\ \Omega$
(C) $20\ \Omega$
(D) $10\ \Omega$

53. A magnetic field line is used to find the direction of
(A) south-north   (B) a bar magnet   (C) a compass needle   (D) magnetic field

54. In case of bar magnet, lines of magnetic field
(A) start from the north pole and end at the south pole
(B) run continuously through the bar and outside the bar
(C) emerge in circular paths from the middle of the bar
(D) are produced only at the north pole like ray of light from a bulb.

55. An electromagnet is
(A) temporary magnet using hard magnetic material
(B) permanent magnet using soft magnetic material
(C) temporary magnet using soft magnetic material
(D) permanent magnet using hard magnetic material

56. If R = 2 Ω, Find the resistance between A and B,
    (A) 1Ω   (B) 2Ω
    (C) 3Ω   (D) 4 Ω

57. Find the potential difference between B and D,
    (A) -1V
    (B) 1V
    (C) -2V
    (D) 2V

58. Three resistances 2, 3 and 5 Ω are connected in parallel to a battery of 10V. The potential difference across the 3 Ω resistance is
    (A) 2 V   (B) 3 V   (C) 5 V   (D) 10 V

59. Three resistances 2, 3 and 5 Ω are connected in series to a battery of 10V. The potential difference across the 3 Ω resistance is
    (A) 2 V   (B) 10 V   (C) 5 V   (D) 3 V

60. Which unit could be used to measure current?
    (A) Volt   (B) Electron volt   (C) Coulomb   (D) Ampere

Section – C
CHEMISTRY
(Q 61 to Q 80)

61. Copper displaces which of the following metals from its salt solution:

   (A) $ZnSO_4$ (B) $FeSO_4$ (C) $AgNO_3$ (D) $NISO_4$

62. The reaction $H_2 + Cl_2 \rightarrow 2HCl$ represents:

   (A) Oxidation   (B) Reduction   (C) Decomposition   (D) Combination

63. The reaction between lead nitrate and potassium iodide present in aqueous solution is an example of

   (A) Decomposition reaction   (B) Displacement Reaction
   (C) Double displacement reaction   (D) Neutralisation reaction

64. An acid can react with

   (A) AgCl   (B) Na_2CO_3 (C) $PbSO_4$ (D) Na_2SO_4

65. Which of the following gives CO_2 on heating

   (A) Slaked line   (B) Quick line   (C) Lime stone   (D) Soda ash

66. Setting of plaster of Paris takes place due to

   (A) Oxidation   (B) Reduction   (C) Dehydration   (D) Hydration

67. A compound X is bitter in taste. It is a component of washing power and react with dil HCl to produce brisk effervescence due to colourless, odourless gas Y which turns lime water milky due to formation of Z. When excess of CO_2 in passed, mikiness disappears due to formation of P. Identify P.

   (A) Na_2CO_3 (B) $CaCO_3$ (C) $Ca(HCO_3)_2$ (D) CO_2

68. What is the pH of 10^{-8} M HCl solution.

   (A) 8   (B) 7   (C) 6.96   (D) 10

69. Alcohols can be produced by hydration of

   (A) alkenes   (B) alkynes   (C) alkanes   (D) acids

70. An example of soap is

   (A) $C_{15}H_{31}COONa$ (B) CH_3COONa (C) C_6H_5COONa (D) $C_{17}H_{35}OSO_3Na$

71. Which of the following have highest melting point?

   (A) NaCl   (B) LiCl   (C) $CaCl_2$ (D) CaO

72. The chemical rK^n that takes place during calcinations in:

   (A) $ZnS(s)+O_2 \xrightarrow{\Delta} ZnO+SO_2$ (B) $ZnCO_3 \xrightarrow{\Delta} ZnO(s)+CO_2$
   (C) $MnO_2 + A\ell \rightarrow Mn + A\ell_2O_3$ (D) $Fe_2O_3 + A\ell \rightarrow Fe + A\ell_2O_3$

73. Which of the following method is suitable for preventing an iron frying pan from rusting.

    (A) Appling grease   (B) Applying paint

    (C) Applying a coating of zinc   (D) All of the above

74. An acid can react with

    (A) AgCl   (B) Na_2CO_3 (C) $PbSO_4$ (D) Na_2SO_4

75. Which of the following gives CO_2 on heating

    (A) Slaked line   (B) Quick line
    (C) Line stone   (D) Soda ash

76. Setting of plaster of paris takes palace due to:

    (A) Oxidation   (B) Reduction   (C) Dehydration   (D) Hydration

77. A basic lining is given to a furnace by using

    (A) Calcinated dolomite   (B) Copper sulphate

    (C) Haematite   (D) Silica

78. Malachite is an ore of

    (A) Iron   (B) Copper   (C) Mercury   (D) Zinc

79. Metal always found in free state is

    (A) Gold   (B) Silver   (C) Copper   (D) Sodium

80. An example of soap os

    (A) $C_{15}H_{31}COONa$ (B) CH_3COONa
    (C) C_6H_5COONa (D) $C_{17}H_{35}OSO_3Na$

Section – D
MATHEMATICS
(Q 81 to Q 100)

81. Sum of n terms of the series
$\sqrt{2} + \sqrt{8} + \sqrt{18} + \sqrt{32} + \ldots$ is

(A) $\dfrac{n(n+1)}{2}$

(B) $2n(n+1)$

(C) $\dfrac{n(n+1)}{\sqrt{2}}$

(D) 1

82. 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 digits 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

83. The value of the expression $\sqrt{34 - 24\sqrt{2}} \times \left(4 + 3\sqrt{2}\right)$ is

(A) –2

(B) 2

(C) 3

(D) 4

84. In an AP, $S_p = q$, $S_q = p$ and S_r denotes the sum of first r terms. Then, S_{p+q} is equal to

(A) 0

(B) $-(p+q)$

(C) $p + q$

(D) pq

85. If x + 2 and x – 1 are the factors of $x^3 + 10x^2 + mx + n$, then the values of m and n are respectively.

(A) 5 and –3

(B) 17 and –8

(C) 7 and –18

(D) 23 and –19

86. 7 men and 8 boys can do a piece of work in 2 days. 4 men and 12 boys can do 29/56 of the same work in 1 day. In how many days will 1 man do this work?

(A) 24 days

(B) 25 days

(C) 27 days

(D) 28 days

87. If $(x+y)^3 - (x-y)^3 - 6y(x^2 - y^2) = ky^3$. Then k =

(A) 1

(B) 2

(C) 4

(D) 8

88. If the sum of n terms of an AP. Is $2n^2 + 5n$ then its nth term is

(A) 4n – 3

(B) 3n – 4

(C) 4n +3

(D) 3n + 4

89. If four numbers in AP are such that their sum is 50 and greatest number is four times the least, then the numbers are

(A) 5, 10, 15, 20

(B) 4, 10, 16, 22

(C) 3, 7, 11, 15   (D) None of these

90. If pqr = 1, what is the value of the expression $\dfrac{1}{1+p+q^{-1}} + \dfrac{1}{1+q+r^{-1}} + \dfrac{1}{1+r+p^{-1}}$?

    (A) 1   (B) −1

    (C) 0   (D) $\dfrac{1}{3}$

91. A train T_1 leaves a place P at 5 am and reaches another place Q at 9 am another train T_2 leaves the place Q at 7 am and reaches the place P at 10 : 30 am. The time at which the two trains cross each other is

    (A) 8 : 26 am   (B) 7 : 56 am

    (C) 8 : 15 am   (D) 8 am

92. If two positive integers 'a' and 'b' are expressible in the form of $a = p^3q^2$ and $b = p^2q^4$, p and q being prime numbers, then LCM (a, b) is

    (A) p^2q^3 (B) p^3q^3

    (C) p^2q^4 (D) p^3q^4

93. If $m = n^2 - n$, where n is an integer, then $m^2 - 2m$ is divisible by

    (A) 20   (B) 24   (C) 30   (D) 16

94. The value of $\sqrt{97 \times 98 \times 99 \times 100 + 1}$ is equal to

    (A) 9901   (B) 9891   (C) 9801   (D) 9701

95. Let P(x) be a polynomial of degree 3 and $P(n) = \dfrac{1}{n}$ for n = 1, 2, 3, 4. Then the value of P (5) is

    (A) 0   (B) $\dfrac{1}{5}$ (C) $-\dfrac{2}{5}$ (D) $\dfrac{3}{5}$

96. If α and β are the roots of the equation $3x^2 - 5x + 3 = 0$, then the quadratic equation whose roots are $\alpha^2\beta$ and $\alpha\beta^2$ is

    (A) $3x^2 - 5x + 3 = 0$ (B) $3x^2 - 8x + 5 = 0$ (C) $3x^2 - 8x + 3 = 0$ (D) $3x^2 - 5x - 3 = 0$

97. In village Madhubani, 8 women and 12 girls can paint a large mural in 10 hours. 6 women and 8 girls can paint it in 14 hours. The number of hours taken by 7 women and 14 girls to paint the mural is

    (A) 10   (B) 15   (C) 20   (D) 35

98. If the polynomial $x^4 - 6x^3 + 16x^2 - 25x + 10$ is divided by another polynomial $x^2 - 2x + k$, the remainder comes out to be x + a, then the value of a is

    (A) -1   (B) -5   (C) 1   (D) 5

99. Which of the following digits is ruled out in the units place of $12^n + 1$ for every positive integer n?

    (A) 1   (B) 3   (C) 5   (D) 7

100. If $(x^{31} + 31)$ is divided by (x + 1), the remainder is

    (A) 0   (B) 1   (C) 30   (D) 31