



**MENTORS EDUSERV TALENT REWARD EXAM (METRE)
SAMPLE TEST PAPER**
[For Students presently in Class 7 going to Class 8 in 2019]

Time : 2 hours

Maximum Marks: 300

INSTRUCTIONS

[A] General

1. This Question paper contains **FIVE** Parts, **A to E** (Physics, Chemistry, Mathematics, Biology & Mental Ability).
2. This Question Paper contains **16 pages**.
3. This question paper contains total **100 questions** (20 questions each in Physics, Chemistry, Mathematics, Biology and Mental Ability).
4. The Question Paper has blank spaces at the bottom of each page for rough work. No additional sheets will be provided for rough work.
5. Blank papers, clip boards, log tables, slide rule, calculators, cellular phones, pagers and electronic gadgets, in any form, are **NOT** allowed.
6. The **OMR** (Optical Mark Recognition) sheet shall be provided separately.

[B] Answering on the OMR

7. In all the parts, each question will have **4 choices** out of which **only one choice is correct**.
8. Darken the bubble with **Ball Pen (Blue or Black) ONLY**.

[C] Filling OMR

9. On the **OMR sheet**, fill all the details properly and completely, otherwise your OMR will not be checked.
10. Do not write anything or tamper the barcode in the registration no. box.

[D] Marking Scheme:

11. For each question you will be awarded **3 marks** if you darken the bubble corresponding to the correct answer **ONLY** and **zero (0) marks** if no bubble is darkened. In all other cases, **minus one (-1) mark** will be awarded.

Name :

Registration No.:

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DO NOT BREAK THE SEAL ON THIS BOOKLET, AWAIT INSTRUCTIONS FROM THE INVIGILATOR.

SEAL

PART-A : PHYSICS

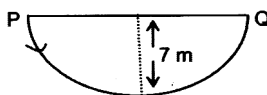
1. An insect crawls up a pole of 10 m at 1 m/s for 3 seconds and then slips back at 0.5 m/s for 3 seconds. The motion is repeated and it reaches the top of the pole, if it started from the base, then the time taken to reach the top (in sec) is
(A) 28.5 (B) 30 (C) 32.5 (D) 35
2. Increase in carbon dioxide in atmosphere causes
(A) Rise in earth temperature (B) Fall in earth temperature
(C) Uniform earth temperature (D) Increase in Ultraviolet rays
3. Which of the following occur more frequently than the other three in the Indian Ocean ?
(A) Cyclones (B) Hurricanes (C) Tornadoes (D) Typhoons
4. When the wind is deflected due to the rotation of the Earth it is called as
(A) Geostrophic wind (B) Polar Wind
(C) westerlies (D) Trade Winds
5. A body projected upwards from the top of a building is an example of _____.
(A) uniform motion (B) non-uniform motion
(C) periodic motion (D) oscillatory motion
6. $20 \text{ ms}^{-1} = \text{_____ km h}^{-1}$
(A) 12.5 (B) 72 (C) 50/9 (D) 32
7. Choose the correct statement
(A) Unit of acceleration is m s^{-2}
(B) Speed = distance/time
(C) If a body moves with uniform velocity its acceleration is zero.
(D) All the above

Space for rough work

8. A vehicle travels along a straight path between two places α and β . It travels first half of the distance with a velocity of 72 km h^{-1} and the remaining distance with a velocity of 36 km h^{-1} . Then the average velocity of the vehicle is _____ m s^{-1} .



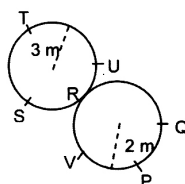
- (A) $11.\bar{3}$ (B) $13.\bar{3}$ (C) 15 (D) 14
9. In case of an incense stick or an agarbati, the smoke at the lighted end of stick moves in upward direction, it is because
- (A) the cool air below the lighted end moves to take the place of hot air above the lighted end.
- (B) the air at the hot end is more dense.
- (C) it is natural for the smoke to move up.
- (D) the smoke is repelled by the gravity of earth.
10. An athlete runs along a circular track of radius 14 m with a speed of 11 m s^{-1} then the time taken by the athlete to complete 6 rounds is _____.
- (A) 48 s (B) 0.8 min (C) 0.0133 h (D) All the above
11. A car is moving along a semicircular track as shown in the figure in a duration of 2π second from P to Q, then choose the correct statement(s).



- (A) The distance covered by the car is 14 m.
- (B) The average velocity of the car is 2.23 m s^{-1} .
- (C) The average speed of the car is 3.5 m s^{-1} .
- (D) Both (B) and (C)

Space for rough work

12. A boy dropped a ball from the top of a tower of height 125 m then the average velocity of the ball at the end of 5 second if it takes 5 s to reach the ground _____ m s^{-1} .
 (A) 25 (B) 125 (C) 50 (D) 250
13. An object moves the first half of the total distance with a speed of 2 m s^{-1} . If the average speed of the body is 3 m s^{-1} , the speed of the body when it travels the remaining distance is _____ ms^{-1} .
 (A) 3 (B) 6 (C) 4 (D) 2
14. An athlete moves along a path PQRSTUVP, in 44 seconds as shown in the figure, then the average speed of the athlete is _____ m s^{-1}



- (A) zero (B) $\frac{5}{7}$ (C) $\frac{5}{11}$ (D) None of these
15. A thermometer works on the principle of
 (A) linear expansion of solid.
 (B) cubical expansion of solid.
 (C) uniform expansion of volume of liquid or gas with temperature.
 (D) Both (B) and (C)
16. Choose the correct statement
 (A) When heat energy is given to ice at 0°C the potential energy of the molecules of ice increases.
 (B) Heat added to ice at 0°C does not increase the kinetic energy, and hence, there is no rise of temperature.
 (A) Only A (C) Both A and B (B) Only B (D) None of these

Space for rough work

17. Choose the correct statement
(A) Boiling of a given substance takes place at all temperatures.
(B) Evaporation of a substance takes place at a constant temperature.
(C) Boiling takes place at every part of the liquid.
(D) Evaporation takes place only on the surface of liquid.
(A) Both A and C (B) B, C and D (C) Both C and D (D) All the above
18. Choose the correct statement:
(A) Solids undergo linear, arial and cubical expansions.
(B) Liquids and gases undergo cubical expansion.
(A) Only A (B) Only B (C) Both A and B (D) None of these
19. Bimetallic strip works on the principle of .
(A) unequal expansion of solids (B) unequal contraction of solids
(C) equal expansion of solids (D) Both (A) and (B)
20. Which of the following statements is/are wrong?
(A) Normally, solids expand on melting.
(B) Normally, a liquid contract on freezing.
(C) There is no effect on volume during cooling or heating a gas.
(D) All the above

PART-B : CHEMISTRY

21. Which of the following acid is present in vinegar?
(A) Lactic acid (B) Malic acid (C) Acetic acid (D) Tartaric acid
22. When bitten by an ant, the sting causes irritation
(A) a base in the sting (B) formic acid in the sting
(C) poisonous chemicals (D) both (A) and (B)

Space for rough work

23. Which of the following statement is not correct?
- (A) Acids turn blue litmus solution to red.
 - (B) Raw onion can be used as an olfactor indicator to check acid or base.
 - (C) Bases are sour in taste.
 - (D) Vanilla essence does not give odour in strongly basic solution.
24. Which of the following is incorrectly matched?
- (A) Tomato – tartaric acid
 - (B) Ant sting – methanoic acid
 - (C) Citrus fruit – citric acid
 - (D) Curd – lactic acid
25. The incorrect statement about acids is
- (A) they give H^+ ion in water
 - (B) they are sour in taste
 - (C) they turn blue litmus red
 - (D) they give pink colour with phenolphthalein
26. Acids like lactic acid, uric acid which are obtained usually from plants and animals
- (A) organic acid
 - (B) inorganic acid
 - (C) oxy acid
 - (D) hydra acid
27. Choose one example of inorganic acid (mineral acid) from the following.
- (A) Oxalic acid
 - (B) Acetic acid
 - (C) nitric acid
 - (D) Formic acid
28. Which acid is used in flavoured drinks?
- (A) Boric acid
 - (B) Carbonic acid
 - (C) Sulphuric acid
 - (D) Oxalic acid

Space for rough work

29. Sour milk contains
(A) lactic acid (B) acetic acid (C) tartaric acid (D) citric acid
30. Phenolphthalein is
(A) yellow in acidic medium, pink in basic medium
(B) pink in acid medium, colourless in basic medium
(C) colourless in acidic medium, pink in basic medium
(D) pink in acidic medium, yellow in basic medium
31. Which of the following is always true when a substance undergoes a physical change?
(A) Its colour changes
(B) A new substance is formed
(C) It boils
(D) Its composition remains the same.
32. Which of the following is not an example of a physical change?
(A) Dissolve sugar in water (B) Casting iron in moulds
(C) Setting of cement (D) Magnetisation of iron.
33. Heating of iodine is a example of
(A) physical change (B) chemical change
(C) no change (D) colour change

Space for rough work

34. Which of the following is not a chemical change
- (A) electrolysis of water (B) boiling of water
(C) digestion of food (D) burning of magnesium
35. Which of the following involves both physical and chemical change?
- (A) Burning of a candle (B) Rusting of iron
(C) Cooking of food (D) Boiling of water
36. Digestion of food is an example of which type of change
- (A) Physical change (B) Chemical change
(C) Both of these (D) None of these
37. Which among the following acids is present in lemons?
- (A) acetic acid (B) oleic acid (C) stearic acid (D) citric acid
38. Identify the weak mineral acid among the following :
- (A) palmitic acid (B) acetic acid
(C) carbonic acid (D) hydrochloric acid
39. Among the following, which substance turns phenolphthalein to pink?
- (A) soda water (B) lime water
(C) common salt (D) sugar solution
40. Which of the following does not yield wool?
- (A) Yak (B) Camel (C) Goat (D) Woolly dog

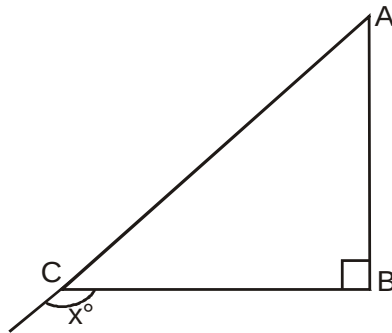
Space for rough work

PART-C : MATHEMATICS

41. In a Right triangle, one of the acute angles is four times the other then the measure of one of the acute angles is

(A) 68° (B) 84° (C) 80° (D) 72°

42. In the figure ABC is a right triangle and $BC = AB$ then the value of 'x' is



(A) 45° (B) 90° (C) 120° (D) 135°

43. The volume of a cube is 343 cm^3 then the edge of the cube is (in cm) is

(A) 3.5 (B) 7 (C) 10.5 (D) 14

44. The total surface area of a cube of edge 5 m is

(A) 125 m^2 (B) 250 m^2 (C) 150 m^2 (D) 300 m^2

45. The edge of two cubes are 2 cm and 4 cm then the ratio of the volumes of the two cubes are

(A) 1 : 8 (B) 8 : 1 (C) 1 : 9 (D) 9 : 1

46. If $\frac{9x-5}{7} + \frac{6-3x}{2} = 2$ then the value of 'x' is

(A) $\frac{2}{3}$ (B) $\frac{3}{4}$ (C) $\frac{5}{4}$ (D) $\frac{4}{3}$

Space for rough work

47. If $3y + 1\frac{1}{2} + 6(4 - 5y) = 12$ then the value of 'y' is
(A) $\frac{1}{6}$ (B) 11 (C) $\frac{1}{2}$ (D) 7
48. If $\frac{z+5}{7} + \frac{4(z-11)}{9} + 3 = 0$ then the value of 'z' is
(A) 1 (B) 2 (C) -4 (D) 5
49. Two third of a number exceeds one third of the number by 10 then the number is
(A) 10 (B) 20 (C) 30 (D) 40
50. Two third of a number is 32 less than three fifth of the number then the number is
(A) 360 (B) -480 (C) -360 (D) 480
51. One third of a number is subtracted from three times the number the result is 800 then the number is
(A) 300 (B) 400 (C) 200 (D) 600
52. The two missing numbers shown with asterisk in the equation $5\frac{3}{*} \times * \frac{1}{2} = 19$ are
(A) 6, 3 (B) 7, 3 (C) 8, 3 (D) 11, 3
53. Which of the following fractions is less than $\frac{7}{8}$ and greater than $\frac{1}{3}$?
(A) $\frac{1}{4}$ (B) $\frac{23}{24}$ (C) $\frac{11}{12}$ (D) $\frac{17}{24}$
54. The sum of the rational numbers $-\frac{5}{16}$ and $\frac{7}{12}$ is
(A) $-\frac{7}{48}$ (B) $\frac{1}{24}$ (C) $\frac{13}{48}$ (D) $\frac{1}{3}$

Space for rough work

55. If the sum of two integers is -26 and one of them is 14 , then the other integer is
(A) -12 (B) 12 (C) -40 (D) 40
56. The HCF and the LCM of two numbers are 24 and 1008 . If one of the numbers is 168 , then find the other number is
(A) 336 (B) 252 (C) 148 (D) 144
57. If $x^2 - y^2 = 28$ and $x + y = 7$ then $(x - y)^2$ is
(A) 8 (B) 4 (C) 16 (D) 12
58. The number added to $\frac{7}{12}$ to get $\frac{4}{15}$ is
(A) $-\frac{19}{60}$ (B) $-\frac{11}{30}$ (C) $\frac{51}{60}$ (D) $\frac{1}{20}$
59. The number subtracted from $-\frac{3}{5}$ to get -2 is
(A) $-\frac{7}{5}$ (B) $-\frac{13}{5}$ (C) $\frac{13}{5}$ (D) $\frac{7}{5}$
60. $\frac{4}{9} \div x = -\frac{8}{15}$ then 'x' equals
(A) $-\frac{32}{45}$ (B) $-\frac{8}{5}$ (C) $-\frac{9}{10}$ (D) $-\frac{5}{6}$

Space for rough work

PART-D : BIOLOGY

61. Digestion of food in the mouth is facilitated by
(A) Teeth (B) Tongue (C) Saliva (D) Jaws
62. *Rhizobium* is an example of
(A) Symbiosis (B) Parasites (C) Insectivorous (D) none of these
63. Plants get carbon-di-oxide from the air for photosynthesis with the help of
(A) root (B) stomata (C) leaf veins (D) sepals
64. The plant which traps and feeds on insects is
(A) *cuscuta* (B) china rose (C) pitcher plant (D) rose
65. Which of the following is a ruminant?
(A) buffalo (B) camel (C) goat (D) all of these
66. Which of the following is not a part of nutrition?
(A) digestion (B) absorption (C) assimilation (D) excretion
67. An amoeba ingests food with the help of
(A) Cilia (B) Tentacles (C) Pseudopodia (D) Buccal Cavity
68. The role of chlorophyll in photosynthesis is
(A) Absorption of CO_2
(B) Absorption of light
(C) Absorption of light and photochemical decomposition of water
(D) Absorption of water
69. Which of the following has no digestive enzyme ?
(A) Saliva (B) Bile (C) Gastric juice (D) Intestinal juice
70. In anaerobic respiration
(A) O_2 is taken in (B) CO_2 is taken in (C) O_2 is given out (D) CO_2 is given out

Space for rough work

71. Stem respire with the help of
(A) Lenticels (B) Root hair (C) plasmodesmata (D) cuticle
72. Respiration in yeast yields
(A) $\text{CO}_2 + \text{H}_2\text{O}$ (B) Lactic acid
(C) carbon dioxide and alcohol (D) takes place only in darkness
73. In which one of the following organisms exchange of gas takes place through the surface of skin
(i) Earthworm (ii) Cockroach (iii) Frog (iv) Spider
(A) (i) (B) (i) & (iii) (C) (ii) (D) (ii) & (iv)
74. The percentage of oxygen and carbon-di-oxide in exhaled air is
(A) 16.11% oxygen and 4.4% carbon-di-oxide
(B) 21% oxygen and 0.04% carbon-di-oxide
(C) 16.4% oxygen and 0.04% carbon-di-oxide
(D) 0.04% oxygen and 21% carbon-di-oxide
75. Breathing rate during heavy exercise can increase upto
(A) 25 times per minute (B) 35 times per minute
(C) 45 times per minute (D) 15 times per minute
76. Weather report is prepared by
(A) Meteorological department (B) Weather department
(C) Wind and air department (D) Meter department
77. "False-feet" is another name for
(A) pseudopodia (B) cilia (C) Flagella (D) Pilus
78. Full form of ORS is
(A) Oral Rehydration Solution (B) Oral Rehab solution
(C) Online Rehydration solution (D) Oxygen Rehab system

Space for rough work

79. Largest gland of the body is

- (A) Liver (B) Gall bladder (C) Pancreas (D) stomach

80. Outgrowth on moist surface of food material is

- (A) Algae (B) Fungi (C) Virus (D) None

PART-E : MENTAL ABILITY

DIRECTIONS (Q.Nos. 81-83) : Find the odd numbers/letters/number pair from the given alternatives.

81. (A) Nose (B) Ears (C) Eyes (D) Vestibular

82. (A) TPLI (B) RNJF (C) YUQM (D) SOKJ

83. 32, 13, 51, 24, 46, 20, 72, 45

- (A) 72 (B) 13 (C) 20 (D) 46

DIRECTIONS (Q.No 84) : Which one set of letters when sequentially placed at the gaps in the given letter series shall complete it ?

84. adb_ac_da_cddcb_abc_cbda

- (A) bbcad (B) cbbaa (C) ccbba (D) bccba

85. Name a single letter that can be suffixed to the following words to form new words?

HAT BAR BAT PIN BATH

- (A) E (B) A (C) B (D) D

86. Which one of the areas marked I-VII represents the urban educated who are not hardworking?



- (A) I (B) IV (C) II (D) III

Space for rough work

DIRECTIONS (Q.Nos. 87-88) : Select the related word/letters/numbers from the given alternatives.

87. $9 : 50 :: ?$

- (A) $22 : 110$ (B) $18 : 190$ (C) $20 : 105$ (D) $15 : 225$

88. $16 : 22 :: 36 : ?$

- (A) 44 (B) 24 (C) 26 (D) 46

DIRECTIONS (Q.Nos. 89-90) : Select the missing number from the given responses.

89.

18	21	24
3	9	3
6	4	8
21	26	?

- (A) 22 (B) 27 (C) 24 (D) 29

90.

	25		324		64
64	31	144	9	38	16
	36			169	
			36	?	576
				361	

- (A) 115 (B) 82 (C) 135 (D) 57

91. Some equations are solved on the basis of a certain system. On the same basis find out the correct answer for the unsolved equation.

$$4 - 5 - 1 = 514, \quad 3 - 5 - 6 = 563, \quad 0 - 6 - 8 = ?$$

- (A) 806 (B) 068 (C) 680 (D) 860

Space for rough work

DIRECTIONS (Q.Nos.92 - 93) : Which one of the given responses would be a meaningful order of the following ?

- 92.** 1. Crop 2. Root 3. Stem 4. Seed
 5. Flower
 (A) 4, 2, 3, 5, 1 (B) 2, 4, 5, 1, 3 (C) 2, 3, 4, 1, 4 (D) 2, 3, 4, 1, 5
- 93.** 1. Frog 2. Eagle 3. Grasshopper 4. Snake
 5. Grass
 (A) 5, 3, 1, 4, 2 (B) 5, 3, 4, 2, 1 (C) 1, 3, 5, 2, 4 (D) 3, 4, 2, 5, 1

DIRECTIONS (Q.Nos. 94-95) : A series is given, with one term missing. Choose the correct alternative from the given ones that will complete the series.

- 94.** 0, 7, 26, 63, ?
 (A) 87 (B) 96 (C) 123 (D) 124
- 95.** Sohan drove 15 km to the West from his house, then turned left and walked 20 km. He, then turned East and walked 25 km and finally turning left covered 20 km. How far he is from his house?
 (A) 40 km (B) 5 km (C) 10 km (D) 80 km

DIRECTIONS (Q.Nos.96 - 100) : Find the odd number/letters/number pair from the given alternatives.

- 96.** (A) 25-21 (B) 61-12 (C) 44-31 (D) 34-40
- 97.** (A) 339 (B) 326 (C) 428 (D) 338
- 98.** (A) STR (B) ONP (C) IHJ (D) LKM
- 99.** (A) Berene (B) Bristol (C) Zurich (D) Geneva
- 100.** (A) Assassinate (B) Kill (C) Murder (D) Kidnap

Space for rough work

ANSWER - KEY**PART-A : PHYSICS**

- | | | | |
|---------|---------|---------|---------|
| 1. (C) | 2. (A) | 3. (A) | 4. (A) |
| 5. (B) | 6. (B) | 7. (D) | 8. (B) |
| 9. (A) | 10. (D) | 11. (D) | 12. (A) |
| 13. (B) | 14. (B) | 15. (C) | 16. (C) |
| 17. (C) | 18. (C) | 19. (D) | 20. (C) |

PART-B : CHEMISTRY

- | | | | |
|---------|---------|---------|---------|
| 21. (C) | 22. (B) | 23. (C) | 24. (A) |
| 25. (D) | 26. (A) | 27. (C) | 28. (B) |
| 29. (A) | 30. (C) | 31. (D) | 32. (C) |
| 33. (A) | 34. (B) | 35. (A) | 36. (B) |
| 37. (D) | 38. (C) | 39. (B) | 40. (D) |

PART-C : MATHEMATICS

- | | | | |
|---------|---------|---------|---------|
| 41. (D) | 42. (D) | 43. (B) | 44. (C) |
| 45. (A) | 46. (D) | 47. (C) | 48. (B) |
| 49. (C) | 50. (B) | 51. (A) | 52. (B) |
| 53. (D) | 54. (C) | 55. (C) | 56. (D) |
| 57. (C) | 58. (A) | 59. (D) | 60. (D) |

PART-D : BIOLOGY

- | | | | |
|---------|---------|---------|---------|
| 61. (C) | 62. (A) | 63. (B) | 64. (C) |
| 65. (D) | 66. (D) | 67. (C) | 68. (C) |
| 69. (B) | 70. (D) | 71. (A) | 72. (C) |
| 73. (B) | 74. (A) | 75. (A) | 76. (A) |
| 77. (A) | 78. (A) | 79. (A) | 80. (B) |

PART-E : MENTAL ABILITY

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|---------|---------|---------|----------|
| 81. (D) | 82. (B) | 83. (B) | 84. (B) |
| 85. (A) | 86. (B) | 87. (C) | 88. (A) |
| 89. (D) | 90. (D) | 91. (C) | 92. (A) |
| 93. (A) | 94. (D) | 95. (C) | 96. (C) |
| 97. (D) | 98. (A) | 99. (D) | 100. (D) |