

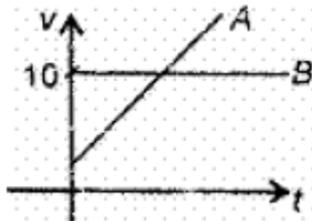
**Sample Paper (Class – 10<sup>th</sup>)**  
**EYSE (AY 2021 – 2022)**

**Physics**

1. A particle accelerates from rest at a constant rate for some time and attains a constant velocity of  $8 \text{ ms}^{-1}$ . Afterwards it decelerates with a constant rate and comes to rest. If the total time taken is 4 second, the distance travelled is
- (1) 32 meter
  - (2) 16 meter
  - (3) 4 meter
  - (4) Insufficient data

2. Match the following with correct response.
- |   |                      |
|---|----------------------|
| (i) Rate of change of velocity motion         | (A) Uniform circular |
| (ii) Rate of change of displacement           | (B) Velocity         |
| (iii) Rate of change of distance              | (C) Acceleration     |
| (iv) Rate of change of speed in circular path | (D) Speed            |
- (1) i-A, ii-C, iii-B, iv-D  
(2) i-C, ii-B, iii-D, iv-A  
(3) i-D, ii-A, iii-C, iv-B  
(4) i-B, ii-D, iii-A, iv-C

3. The v-t graph shown here depicts the motion of A and B such that



- (1) They collide when their velocity is  $10 \text{ ms}^{-1}$
- (2) Both A and B have zero acceleration
- (3) Both A and B have non-zero acceleration
- (4) Velocity of A exceeds beyond  $10 \text{ ms}^{-1}$

4. Fireman holds a hose by exerting a \_\_\_\_\_.
- (1) Momentum
  - (2) Friction
  - (3) Force
  - (4) An acceleration
5. A water tanker filled up to 2/3rd of its height is moving with a uniform speed. On sudden application of the brake, the water in the tank would
- (1) Be unaffected
  - (2) Move backwards
  - (3) Rise upwards
  - (4) Move forwards
6. Find the incorrect statement
- (1) The body is said to be accelerating if it moves in a uniform circular motion
  - (2) When a body moves with constant speed its acceleration is zero
  - (3) The slope of velocity-time graph gives instantaneous acceleration
  - (4) None of these
7. Match the following with correct response.
- |                   |                   |
|-------------------|-------------------|
| I. Velocity       | A. $\text{m/s}^2$ |
| II. Displacement  | B. $\text{m/s}$   |
| III. Acceleration | C. $\text{s}$     |
| IV. Time          | D. $\text{m}$     |
- (1) I-A, II-C, III-B, IV-D
  - (2) I-B, II-D, III-A, IV-C
  - (3) I-C, II-B, III-D, IV-A
  - (4) I-D, II-A, III-C, IV-B
8. Area below v-t graph is a measure of
- (1) Angular speed
  - (2) Displacement
  - (3) Angular acceleration
  - (4) Acceleration
9. If an object experiences a net zero unbalanced force, than the body
- (1) Moves with constant velocity
  - (2) Can be accelerated
  - (3) Cannot remain at rest
  - (4) None of these
10. Newton's third law tells that \_\_\_\_\_ force does not exist.
- (1) Motion
  - (2) Isolated
  - (3) Movement
  - (4) Momentum

11. If 10 kg and 5 N are the S.I. units of mass and force respectively, the S.I. unit of acceleration is
- (1)  $5 \text{ m/s}^2$
  - (2)  $2 \text{ m/s}^2$
  - (3)  $0.5 \text{ m/s}^2$
  - (4)  $1 \text{ m/s}^2$
12. Statement A: Rocket contains fuel as well as oxygen to burn its fuel in its body.  
Statement B: A jet plane takes oxygen from atmosphere to burn its fuel
- (1) statement A is true
  - (2) statement B is false
  - (3) both the statement a and b are true
  - (4) neither statement A nor statement B is true
13. In vacuum all freely falling objects
- (1) have the same acceleration
  - (2) have the same velocity
  - (3) have the same speed
  - (4) have the same force
14. Which of the following gives both direction and magnitude?
- (1) Unit Scalar
  - (2) Scalar
  - (3) Unit Vector
  - (4) Vector
15. Law of gravitation gives the gravitational force between
- (1) any two bodies having some mass
  - (2) two charged bodies only
  - (3) the earth and Sun only
  - (4) the earth and a point mass on earth

## Chemistry

16. Match the following with the correct response:-

(1) Fusion	(A) Change of liquid state into gaseous state
(2) Vaporisation	(B) Change of liquid state into solid state
(3) Condensation	(C) Change of vapour state into liquid state
(4) Solidification	(D) Change of solid state into liquid state

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

17. Identify the incorrect statement about evaporation

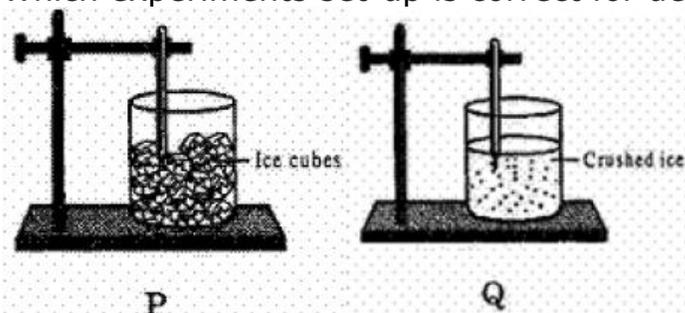
- (A) It causes cooling
- (B) It increase with increase in humidity
- (C) It decreases with increase in temperature
- (D) It increases with increase in wind speed

- (1) (B) and (C) are incorrect
- (2) (A), (B) and (C) are correct
- (3) (A) and (B) are correct
- (4) All of these

18. Which of the following energy is absorbed during change of state of a substance?

- (1) Latent heat
- (2) Hydro energy
- (3) Heat of solution
- (4) Specific heat

19. Which experiments set-up is correct for determining the melting pt. of ice



- (1) Both P and Q
- (2) Q
- (3) P
- (4) Neither P nor Q

20. In the determination of boiling point of water correct reading in the thermometer is noted when :
- (1) Water starts boiling
  - (2) Temperature starts rising
  - (3) Temperature becomes constant
  - (4) Whole of the water evaporates
21. Which of the following is not a chemical change?
- (A) Changing of milk into curd
  - (B) Freezing of water
  - (C) Burning of paper
  - (D) Mixing of iron filling & sand
- (1) (B) and (D) are correct
  - (2) (A), (B) and (C) are correct
  - (3) (A) and (B) are correct
  - (4) All of these
22. A liquid is kept in an open china dish A. The evaporation of the liquid can be accelerated
- (1) By keeping the dish under a running fan
  - (2) All the statement are correct
  - (3) By keeping the dish in the open
  - (4) By blowing air into the liquid
23. Sulphur dioxide is collected in the lab in a gas jar by upward displacement of air. Which of the following statement is correct regarding the density of the gas?
- (1) It is heavier than air.
  - (2) Its density is equal to that of air.
  - (3) It is lighter than air.
  - (4) No correct statement can be made about the density of the gas.
24. Which of the two statements is true?
- Statement A:** Evaporation is a surface phenomenon but boiling is not.
- Statement B:** The diffusion of the gases varies inversely as the square root of their densities.
- (1) Both A and B
  - (2) Neither A nor B
  - (3) Statement A
  - (4) Statement B
25. In the determination of boiling of water, it is advised to put the bulb of the thermometer above the water rather than in water, it is to:
- (1) Reduce the error due to expansions of glass because of heat
  - (2) Obtain the boiling point accurately even in much a shorter time
  - (3) Make sure that boiling point obtained is accurate even when water sample contains non-volatile impurities dissolved
  - (4) Reduce the error due to atmospheric pressure

26. Which will not give a stable solution even when stirred for sometime?
- (1) Milk in water
  - (2) Common salt in water
  - (3) Egg albumin in water
  - (4) Sugar in water
27. The stem of the funnel must to be kept, white during filtration
- (1) touching the inner wall of the beaker
  - (2) out of beaker
  - (3) no touching the inner wall of the beaker
  - (4) at the centre of the beaker
28. Paul was rushing with a bottle of tincture iodine. Some iodine solution splashed on his yellow coloured cotton shirt and also on the white table cloth. The stain on the table cloth was yellowish brown while that on his shirt was blue-black. The most plausible scientific reason for this is that the:
- (1) shirt was dyed with metanil yellow
  - (2) shirt had absorbed sweats
  - (3) table cloth was starched but not the shirt
  - (4) shirt was starched after washing
29. Take three test tubes A, B and C containing salt solution, egg albumin in water and suspension of sand in water. Filter the contents of A, B, C through filter paper and observe the residue and filtrate. Identify the correct statements.
- (1) Residue left and clear filtrate in all
  - (2) No residue and clear filtrate in all the test tubes
  - (3) Translucent filtrate in all
  - (4) A clear filtrate and no residue in A, translucent filtrate and no residue in B, solid particles as residue and clear filtrate in C
30. What is the order of methods applied to separate the components of a mixture of salt, sand and ammonium chloride?
- (1) Sublimation, dissolving in water, filtration and evaporation
  - (2) Dissolving in water, evaporation and sublimation
  - (3) Moving a magnet, dissolving in water and sublimation
  - (4) Dissolving in water, filtration, evaporation and sublimation

### **Biology**

31. Nitrogen, phosphorus and potassium are examples of
- (1) Micro-nutrients and Macro-nutrients
  - (2) Micro-nutrients
  - (3) Fertilizers
  - (4) Macro-nutrients

32. Match the following with correct response.
- |                       |                      |
|-----------------------|----------------------|
| (i) Roughage          | (A) Nutrient rich    |
| (ii) Concentrates     | (B) DDT              |
| (iii) Biofertilizers  | (C) Nostoc, Anabaena |
| (iv) Biomagnification | (D) Fibre rich       |
- (1) i-D, ii-A, iii-C, iv-B  
(2) i-A, ii-C, iii-B, iv-D  
(3) i-C, ii-B, iii-D, iv-A  
(4) i-B, ii-D, iii-A, iv-C
33. Which cell organelle plays a crucial role in detoxifying many position and drugs in a cell?
- (1) Lysosomes  
(2) Vacules  
(3) Smooth endoplasmic reticulum  
(4) Golgi apparatus
34. A eukaryotic nucleus has a
- (1) Non-porous, single membrane  
(2) Porous, single membrane  
(3) Porous, double membrane  
(4) Non-porous, double membrane
35. The most abundant material on plant cell wall is
- (1) Proteins  
(2) Lipids  
(3) Wax  
(4) Cellulose
36. Which of the following is micro-nutrient?
- (1) Boron  
(2) Nitrogen  
(3) Potassium  
(4) Phosphorus
37. Which one of the following is a leguminous green fodder commonly available in winter?
- (1) Elephant grass  
(2) Wheat  
(3) Rice and Jowar  
(4) Berseen and Lucerne
38. The cell organelle involved in forming complex sugars from simple sugars are
- (1) Endoplasmic reticulum  
(2) Plastids  
(3) Golgi apparatus  
(4) Ribosomes

39. Which of the following is absent in plant cell?
- (1) Cell membrane
  - (2) Vacuole
  - (3) Mitochondria
  - (4) Centriole
40. The cell organelles (other than the nucleus) which contain DNA are
- (1) Plastids and lysosomes
  - (2) Golgi apparatus and lysosomes
  - (3) Plastids and mitochondria
  - (4) Mitochondria and Golgi apparatus
41. The cell appear elongated, tapering at ends as observed under a microscope. It is
- (1) sclerenchyma fibre
  - (2) striped muscle
  - (3) parenchyma
  - (4) nerve cell
42. Which of the following is a dead cell?
- (1) Sieve tube
  - (2) Tracheid
  - (3) Parenchyma
  - (4) Companion cell
43. One of the following is not a characteristic feature of parenchyma tissue. That feature is:
- (1) cells are thin-walled and prominent
  - (2) a large single vacuole is present in each cell
  - (3) cells are thick at the corners
  - (4) large cells are placed together with inter cellular spaces
44. Some bacteria have the ability to 'fix' nitrogen. This means :
- (1) They convert atmospheric nitrogen gas into biologically useful forms of nitrogen
  - (2) They breakdown useful nitrogen rich compounds and release ammonium ions
  - (3) They convert nitrates into nitrogen gas
  - (4) They convert ammonia into nitrites and nitrates
45. When we breathe in air, nitrogen also goes inside along with oxygen. What is the fate of this nitrogen?
- (1) Nitrogen concentration is already more in the cells so it is not at all absorbed
  - (2) It is absorbed only by the nasal cells
  - (3) It moves along with oxygen into the cell
  - (4) It comes out with the CO<sub>2</sub> during exhalation

## Mathematics

46.  $8\sqrt{15} \div 2\sqrt{3}$

- (1) None of these
- (2)  $4\sqrt{5}$
- (3)  $2\sqrt{5}$
- (4)  $4\sqrt{15}$

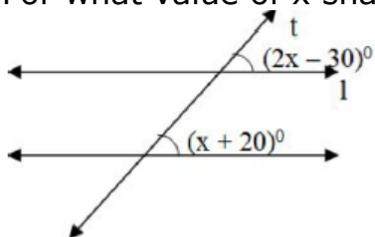
47. The value of  $x^3 + y^3 + 15xy - 125$  when  $x + y = 5$  is

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

48. 8 is a polynomial of degree

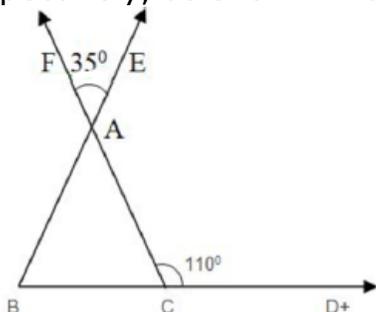
- (1) 1
- (2) None of these
- (3) 0
- (4) 8

49. For what value of  $x$  shall we have  $l \parallel m$  ?



- (1)  $x = 50^\circ$
- (2)  $x = 45^\circ$
- (3)  $x = 60^\circ$
- (4)  $x = 70^\circ$

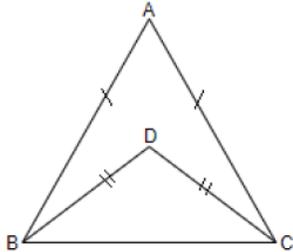
50. The sides  $BC$ ,  $BA$  and  $CA$  of  $\triangle ABC$  have been produced to  $D$ ,  $E$  and  $F$  respectively, as shown in the give figure, Then,  $\angle B$  ?



- (1)  $55^\circ$
- (2)  $65^\circ$
- (3)  $75^\circ$
- (4)  $35^\circ$

51. In  $\triangle ABC$ ,  $\angle C = \angle A$  and  $BC = 6$  cm and  $AC = 5$  cm. Then the length of  $AB$  is:
- (1) 2.5 cm
  - (2) 6 cm
  - (3) 5 cm
  - (4) 3 cm

52. In the adjoining Figure,  $AB = AC$  and  $BD = CD$ . The ratio  $\angle ABD : \angle ACD$  is



- (1) It is 1 : 1
  - (2) It is 1 : 2
  - (3) It is 2 : 3
  - (4) It is 2 : 1
53. Which of the following points lie on the line  $y = 3x - 4$  ?
- (1) (2, 2)
  - (2) (4, 12)
  - (3) (5, 15)
  - (4) (3, 9)

54.  $\left(\frac{125}{216}\right)^{-\frac{1}{3}}$

- (1)  $\frac{6}{5}$
  - (2) 125
  - (3)  $\frac{5}{6}$
  - (4) 216
55. A polynomial of degree \_\_\_\_\_ is called a linear polynomial.
- (1) 1
  - (2) 2
  - (3) 3
  - (4) 0

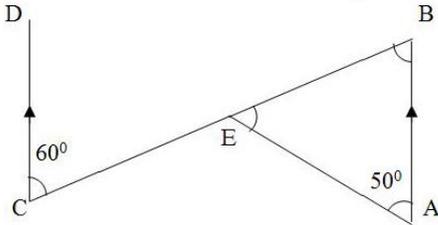
56. The value of  $\frac{(0.87)^3 + (0.13)^3}{(0.87)^2 - (0.87 \times 0.13) + (0.13)^2}$  is

- (1) 0.13
- (2) 0.87
- (3) 0
- (4) 1

57. The sides of a quadrilateral are extended in order to form 4 exterior angles. The sum of these exterior angles is :

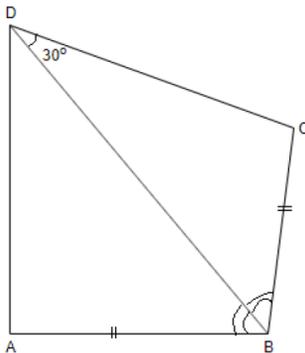
- (1)  $720^\circ$
- (2)  $180^\circ$
- (3)  $90^\circ$
- (4)  $360^\circ$

58. In the given figure,  $AB \parallel CD$ . If  $\angle EAB = 50^\circ$  and  $\angle ECD = 60^\circ$ , then  $\angle AEB = ?$



- (1)  $50^\circ$
- (2)  $60^\circ$
- (3)  $55^\circ$
- (4)  $70^\circ$

59. In the adjoining figure,  $AB = BC$  and  $\angle ABD = \angle CBD$ , then another angle which measures  $30^\circ$  is



- (1)  $\angle BCA$
- (2)  $\angle BCD$
- (3)  $\angle BDA$
- (4)  $\angle BAD$

60. If triangle ABC is obtuse angled and  $\angle C$  is obtuse, then

- (1)  $AB < BC$
- (2)  $AB = BC$
- (3)  $AB > BC$
- (4)  $AC > AB$

61. The value of  $15\sqrt{15} \div 3\sqrt{5}$  is

- (1)  $3\sqrt{5}$
- (2)  $5\sqrt{3}$
- (3) 3
- (4) 5

62. If  $a = -2$ ,  $b = -1$ , then  $a^b - b^a$  is equal to
- (1) -1
  - (2) 0.5
  - (3) -2
  - (4) -1.5
63. The value  $x^3 - 8y^3 - 36xy - 216$ , when  $x = 2y + 6$  is
- (1) 0
  - (2) 3
  - (3) 1
  - (4) 2
64. If  $x-1$  is a factor of  $p(x) = x^3 - 23x^2 + kx - 120$ , then the value of 'k' is
- (1) 120
  - (2) 124
  - (3) 142
  - (4) 140
65. An exterior angle of a triangle is  $80^\circ$  and the interior opposite angles are in the ratio 1 : 3. Measure of each interior opposite angle is :
- (1)  $30^\circ$ ,  $60^\circ$
  - (2)  $20^\circ$ ,  $60^\circ$
  - (3)  $30^\circ$ ,  $90^\circ$
  - (4)  $40^\circ$ ,  $120^\circ$

### **Mental Ability**

66. Rahul told Anand, 'Yesterday I defeated the only brother of the daughter of my grandmother.' Whom did Rahul defeat ?
- (1) Son
  - (2) Father
  - (3) Brother
  - (4) Father-in-law
67. When Amy saw Manish, he recalled, "He is the son of the father of my daughter." Who is Manish?
- (1) Brother-in-law
  - (2) Brother
  - (3) Uncle
  - (4) Nephew
68. A sum of Rs. 1,000 is borrowed at a certain rate of interest. After 4 months, Rs. 500 is again borrowed, but this time at a rate of interest that is thrice the original rate. At the end of the year, the total interest on both the amounts is Rs. 100. What is the original rate per annum?

- (1) 3.33%
- (2) 5%
- (3) 8%
- (4) 10%

69. The average age of boys and girls in a class is 10.5 years; that of the boys is 10.6 years and that of the girls is 10.1 years. If there are 60 boys in the class, how many girls are there in the class?

- (1) 15
- (2) 20
- (3) 22
- (4) 25

70. The average of 16 numbers is 30. If each number is multiplied by 1.5, what will be the new average?

- (1) 35
- (2) 40
- (3) 45
- (4) 50

71. Average marks of a candidate in 6 subjects is 52. His marks in 5 subjects are 60, 48, 36, 55 and 51. Find his marks in his 6<sup>th</sup> subject.

- (1) 48
- (2) 62
- (3) 58
- (4) 52

72. The average marks obtained by Raghu in Hindi and science were 30 less than his marks in Hindi. He got 62 marks in science. Find his marks in Hindi.

- (1) 120
- (2) 122
- (3) 124
- (4) 118

73. The respective ratio of the present age of x and y is 7:1. Four years ago the respective ratio of their age was 19:1. x what will be x age four years from now?

- (1) 42 years
- (2) 38 years
- (3) 46 years
- (4) 36 years

74. A and B start walking from the same point. A goes North and covers 3 km; then turns right and covers 4 km. B goes west and covers 5 km, then turns right and covers 3 kms. How far apart are they from each other ?

- (1) 10 km

- (2) 9 km
- (3) 8 km
- (4) 5 km

75. Sports is related to Logo in the same way as Nation is related to

- (1) Emblem
- (2) Animal
- (3) Ruler
- (4) Anthem

