

Jharkhand PECE 2022 Question Paper

Physics

1. The rockets work on the principles of conservation of
 - Mass
 - Energy
 - Momentum
 - Velocity
2. When a toothpaste tube is squeezed, its shape changes. The force responsible for this is an example of
 - Balanced forces
 - Centripetal forces
 - Unbalanced forces
 - Centrifugal forces
3. A boy of mass 50 kg is standing on the ground exert a force of 500N on the ground. The force exerted by the ground on the boy will be
 - 50N
 - 25000N
 - 10N
 - 500N
4. The weight of an object at the center of the earth of radius R is
 - Zero
 - Infinite
 - R times of the weight at the surface of the earth
 - None of these
5. How much energy does a 100W electric bulb transfer in a minute
 - 100J
 - 600J
 - 3600J
 - 6000J
6. When an object falls freely towards the earth, then its total energy
 - Increases
 - Decreases

- Remains constant
 - First increases and then decreases
7. Which kind of sound is produced in earthquake
- Ultrasound
 - Infrasonic sound
 - Audible sound
 - None of these
8. At 20 degree celsius the minimum distance of a person from a sound reflecting surface to hear an echo is
- 12.2m
 - 17.2m
 - 15.2m
 - 34.4m
9. When we change feeble sound to a loud sound we increase its
- Frequency
 - Amplitude
 - Velocity
 - Wavelength
10. The value of g on the surface of moon
- Less than that on the earth
 - More than that on the earth
 - Is more than the earth
 - None of this these
11. Which of the following material cannot be used to make lens
- Water
 - Glass
 - Plastic
 - Clay
12. Which of the following lenses which would you prefer to use while reading small letters found in a dictionary
- A convex lens of focal length 50 cm
 - A concave lens of focal length 50 cm
 - A convex lens of focal length 5cm
 - A concave lens of focal length 5 cm

13. The least distance of distinct vision for a young adult with normal vision is about

- 25m
- 2.5cm
- 25cm
- 2.5m

14. The human eye forms the image of an object at its

- Cornea
- Iris
- Pupil
- Retina

15. Magnification produced by a rear view mirror fitted in vehicles

- Is less than one
- Is more than one
- Is equal to one
- None of these

16. If your image appears erect the mirror is likely to be

- Plane
- Concave
- Convex
- Either plane or convex

17. Which part of the eye can be donated after death?

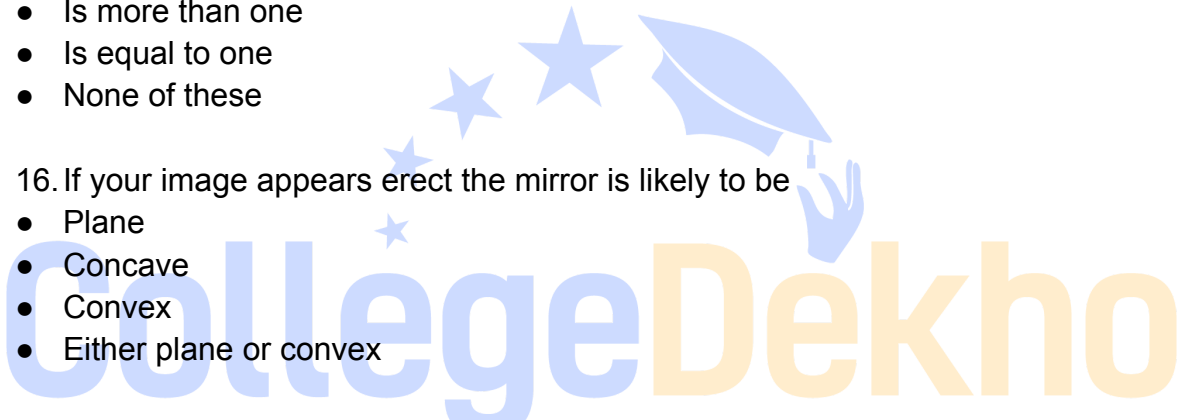
- Cornea
- Iris
- Pupil
- Retina

18. The image formed on retina is

- Real and inverted
- Real and erect
- Virtual and inverted
- Virtual and erect

19. Which of the following is mirror formula

- $1/v + 1/u = 1/f$
- $1/v - 1/u = 1/f$



- $v/u = 1/f$
- None of these

20. Power of lens is equal to

- $P = 1/f$
- $P = f$
- $P = v/u$
- None

Chemistry

1. Which of the following represents the solubility of sugar in water at 25 degree celsius?

- 21 gm
- 204 gm
- 37 gm
- 164 gm

2. Which of the following are physical changes?

- Melting of iron metal
- Rusting of iron metal
- Bending of iron
- More than one

3. The law of conservation of mass was given by

- Dalton
- Proust
- Lavoisier
- Berzelius

4. In water the proportion of oxygen and hydrogen by mass is

- 1:4
- 1:8
- 4:1
- 8:1

5. The ratio of moles of atom is 12 gram of magnesium and 16 gram of sulphur will be

- 3:4
- 4:3

- 1:1
- 1:2

6. An atom is

- (+)vely charged
- (-)vely charged
- Neutral
- None of these

7. Which of the following is the correct electronic configuration of sodium

- 2,8,1
- 8,2,1
- 2,1,8
- 2,8,2

8. The first model of an atom was given by

- Neils Bohr
- Rutherford
- JJ Thomson
- Goldstein

9. Electron was discovered by

- JJ Thomson
- Neils Bohr
- Chadwick
- Goldstein

10. Elements having same atomic number but different mass number is known as

- Isobar
- Isotope
- Isotone
- None

11. The atomic number of four elements A,B,C, and D are 12, 13, 15, and 3 respectively the elements which cannot form a cation is

- A
- B
- C
- D



12. The number of valence electron in a sulphide ion S^{2-} is

- 16
- 10
- 9
- 8

13. Elements having valency one are

- Always metal
- Always non metal
- Always metalloid
- Either metal or non metal

14. An element which is an essential constituent of all organic compounds belongs to

- Group 1
- Group 14
- Group 15
- Group 16

15. Which one of the following elements exhibit maximum number of valence electrons

- Na
- Al
- Si
- P

16. Which of the following elements has the largest atomic radii

- Na
- Mg
- K
- Ca

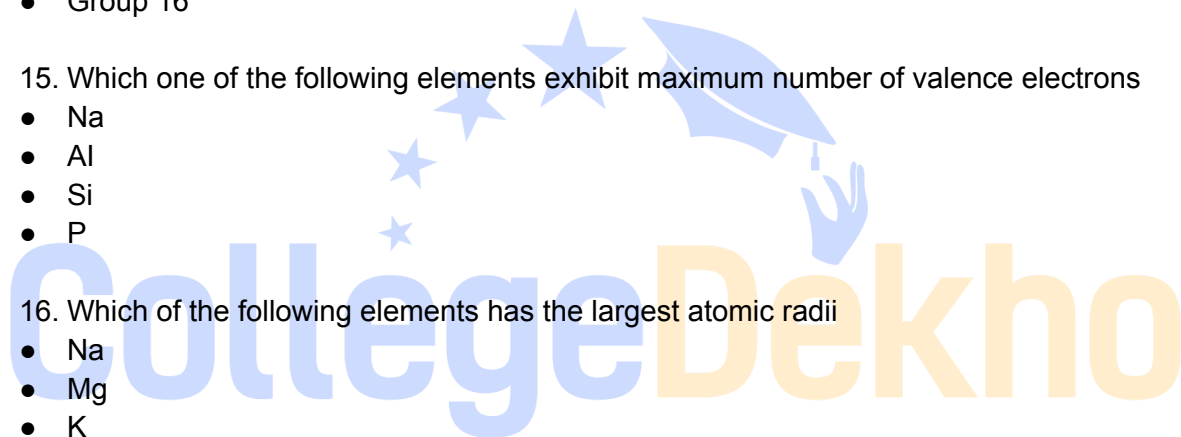
17. Alkene is also known as

- Paraphene
- Olephene
- Both
- None of these

18. The ores of aluminium is

- Bauxite
- Cinebar
- Zinc Blend
- None of these

19. An element reacts with oxygen to give a compound with high melting point this compound is also soluble in water the element is



- Ca
- C
- Si
- Fe

20. Compound having same molecular formula but different structural formula is known as

- Isomerism
- Isotope
- Isobar
- Isotone

Mathematics

1. An algebraic expression that contains only one term is called

- Monomial
- Binomial
- Trinomial
- None

2. If the lines $3x+2ky - 2 = 0$ and $2x+5y+1 = 0$ are parallel, then what is the value of K?

- $4/15$
- $15/4$
- $4/5$
- $5/4$

3. If one equation of a pair of dependent linear equations is $-3x+5y-2 = 0$. The second equation will be:

- $-6x + 10y - 4 = 0$
- $6x - 10y - 4 = 0$
- $6x + 10y - 4 = 0$
- $-6x + 10y +4 = 0$

4. Which of the following methods is/are used to find the solution of a pair of linear equations algebraically?

- Substitution method
- Elimination method
- Cross multiplication method
- All of the above

5. The distance of the point P(2,3) from the x-axis is

- 2
- 3
- 1
- 5

6. The fourth vertex D of a parallelogram ABCD whose three vertices are A (-2,3), B(6,7) and C(8,3) is

- (0,1)
- (0,-1)
- (-1,0)
- (1,0)

7. The point which lies on the perpendicular bisector of the line segment joining the points A (-2,-5) and B (2,5) is

- (0,0)
- (0,2)
- (2,0)
- (-2,0)

8. If the points A(1,2), O(0,0), C(a,b) are collinear then

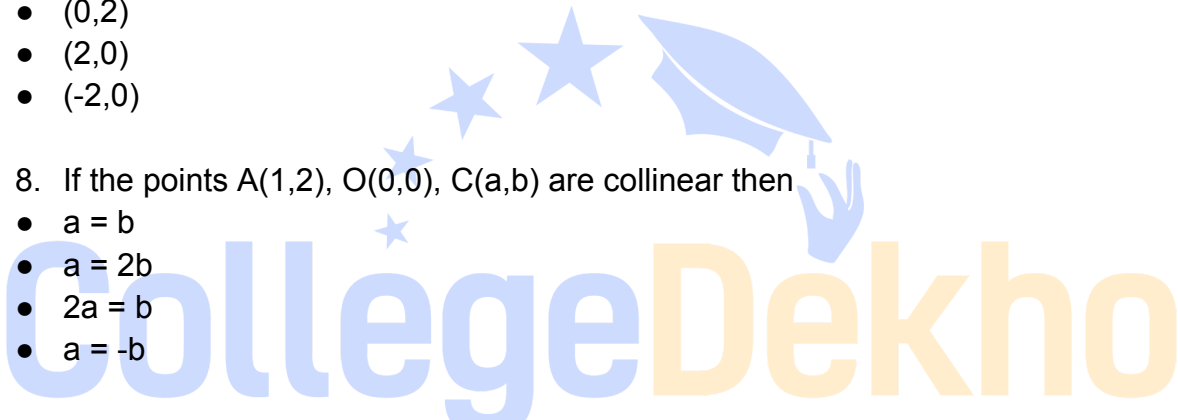
- $a = b$
- $a = 2b$
- $2a = b$
- $a = -b$

9. If the angle between two radii of a circle is 110 degrees, then the angle between the tangents at the end of the radii is

- 90 degree
- 50 degree
- 70 degree
- 40 degree

10. The length of a tangent from a point A at a distance 5cm from the centre of the circle is 4cm. The radius of the circle is

- 3 cm
- 5 cm
- 7 cm
- 10 cm



11. AB is the chord of the circle and AOC is its diameter such that angle $ACB = 50$ degrees. If AT is the tangent to the circle at the point A, then $\angle BAT$ is equal to

- 65 degrees
- 60 degrees
- 50 degrees
- 40 degrees

12. Out of the two concentric circles, the radius of the outer circle is 5 cm and the chord AC of length 8 cm is a tangent to the inner circle. The radius of the inner circle will be

- 3cm
- 4cm
- 2.5 cm
- 2cm

13. Two concentric circles are of radii 5 cm and 3 cm. The length of the chord of the larger circle which touches the smaller circle is

- 8 cm
- 10 cm
- 12 cm
- 18 cm

14. A trader sells two articles for Rs 14784 each, if he gains 12% on one or losses 12% on other than what is the value (in Rs) of the loss?

- 300
- 368
- 432
- 498

15. If the radius of a circle is increased by 25% its area increased by?

- 50%
- 25%
- 28.125%
- 56.25%

16. If 27% of the electricity bill is deducted Rs 1825 is still to be paid. How much was the bill?

- Rs 1437
- Rs 2536
- Rs 2500

- Rs 1473

17. Two numbers are 50% and 80% less than the third number. By how much percent is the second number to be enhanced to make it equal to the first number?

- 150%
- 60%
- 30%
- 37.5%

18. The cost of daily ticket of local train is Rs 50 and monthly pass cost is Rs 1125. If I buy the monthly pass and travel for 30 days in a month then I save?

- 10%
- 25%
- 14%
- 15%

19. A can do a piece of work in 18 days. He worked at it for 12 days and B finished the remaining work in 8 days. B alone can do the whole work in?

- 16 days
- 24 days
- 35 days
- 28 days

20. A car travelling at an average speed of 72 km/hour takes 9 minutes to travel a certain distance. By how much should it increase its speed (in km/hour) to travel the same distance in 8 minutes?

- 8
- 9
- 7
- 6

