



CADET COLLEGE MOHMAND
Class XI (4th Special Entry) - May 2024

Time: 1 hour

Paper: Chemistry

Marks: 50

Q 1: Choose the correct option and shade the appropriate bubble in the Answer Sheet:- (20)

1. Ammonia reacts with carbon dioxide at 200 C° and 200 atm to form:
A. Ammonium carbonate B. Ammonium carbamate C. Urea D. None of these
2. The WHO recommended limit of arsenic in drinking water is _____ mg/dm³.
A. 0.01 B. 0.05 C. 0.04 D. 0.001
3. Functional group of ketone is:
A. -OH B. -CHO C. -CO- D. NH₂
4. Hetero atom in Thiophene is:
A. S B. O C. N D. Mg
5. Which is not an air pollutant?
A. H₂ B. H₂S C. SO₂ D. O₃
6. The basis of periodic law presented by Mendeleev was:
A. Valency B. Atomic mass C. Atomic number D. Atomic volume
7. Percentage of oxygen in urea is:
A. 26.67 B. 46.67 C. 20 D. 6.66
8. Fog is an example of:
A. Solution B. Colloid C. Suspension D. None of these
9. The bases which are soluble in water are called:
A. Acids B. Alkalis C. Salts D. Amphoteric substances
10. The order of reactivity of hydrogen halides with alkenes is:
A. HI < HBr < HCl B. HI > HCl > HBr C. HCl > HBr > HI D. HI > HBr > HCl
11. Benzene is dissolved in:
A. H₂O B. Ether C. NaCl D. HCl
12. The compound which has tetrahedral geometry is:
A. CH₄ B. C₂H₄ C. C₂H₂ D. None of these
13. L-shell has sub-shell(s):
A. s B. s and p C. s, p and d D. s, p, d and f
14. Sugars are polyhydroxy derivatives of:
A. Alkyl halides B. Aldehydes C. Ketones D. Aldehydes and Ketones
15. The purest form of coal is:
A. Peat B. Lignite C. Anthracite D. Bituminous
16. Substitution reaction is the characteristic of:
A. Alkynes B. Alkenes C. Alkanes D. None of these
17. The PH of milk is:
A. 5.4 B. 6.4 C. 7.4 D. 8.4
18. Shielding effect is due to:
A. Neutron B. Proton C. Proton and Neutron D. Electron
19. The coagulation of protein is called:
A. Dehydration B. Decay C. Denaturing D. Deamination
20. The minimum concentration of Chlorine in the swimming pool water is _____.
A. 0.5 mg/dm³ B. 2.5 mg/dm³ C. 1.5 mg/dm³ D. 4.5 mg/dm³

Note: Attempt any SIX questions:-

- Q 2: Pure gold is not used for ornaments, why? (5)
- Q 3: What is substitution reaction? Give an example. (5)
- Q 4: Explain Clark method for removal of hardness of water. (5)
- Q 5: Define: a. Percentage composition. (2)
b. Molarity of a solution. (3)
- Q 6: How many moles of H₂SO₄ are present in 0.500dm³ of 0.150 M H₂SO₄ solution? (5)
- Q 7: Increase in concentration of CO₂ causes green house effect. Justify. (5)
- Q 8: Define metallurgy. What are its steps? (5)
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CADET COLLEGE MOHMAND
Class XI (4rd Special Entry) - May 2024

Time: 1 hour

Paper: Mathematics

Marks: 50

Q.1 Choose the correct option and shade the appropriate bubble in the Answer Sheet:- (20)

1. The roots of $4x^2 - 1 = 0$ are:
A. $\left\{\frac{1}{2}, \frac{-1}{2}\right\}$ B. $\left\{\frac{-1}{2}, \frac{-1}{2}\right\}$ C. $\left\{\frac{1}{2}, \frac{1}{2}\right\}$ D. $\left\{\frac{1}{4}, \frac{-1}{4}\right\}$
2. $w + w^2 =$ _____.
A. -1 B. 1 C. 0 D. i
3. Discriminant of $x^2 = 0$ is
A. 1 B. -1 C. 0 D. Not possible
4. If $w = \frac{-1-i\sqrt{3}}{2}$ then w^2 is:
A. $\frac{-1-i\sqrt{3}}{2}$ B. $\frac{-1+i\sqrt{3}}{2}$ C. $\frac{1-i\sqrt{3}}{2}$ D. $\frac{1+i\sqrt{3}}{2}$
5. If $b^2 - 4ac < 0$ then the roots are:
A. Equal and real B. Unequal and Real C. Imaginary D. None of these
6. If $7:9 :: x:27$ then $x =$ _____.
A. 21 B. 3 C. 7 D. 81
7. What are the coordinates of point (2, -3) after it is reflected over x-axis?
A. (2, 3) B. (-2, -3) C. (-2, 3) D. (2, -3)
8. $i^2, i^3 =$ _____.
A. i B. $-i$ C. 1 D. -1
9. How many tangents can be drawn from a point outside the circle?
A. 1 B. 2 C. 3 D. 4
10. $w^{60} =$ _____.
A. w B. $\frac{1}{w}$ C. -1 D. 1
11. $\cot 60^\circ =$ _____.
A. 1 B. $\sqrt{3}$ C. $\frac{\sqrt{3}}{2}$ D. $\frac{1}{\sqrt{3}}$
12. $1 + \cot^2\theta =$ _____.
A. $\sec^2\theta$ B. $\operatorname{cosec}^2\theta$ C. $\cos^2\theta$ D. $\sin^2\theta$
13. The line $3x + 2y = 7$ has slope:
A. 2 B. 7 C. 3 D. $\frac{1}{3}$
14. An expression which has at least one term involving a radical sign is called:
A. Rational B. Surd C. Open sentence D. None of these
15. Harmonic mean of ungrouped data is:
A. $\frac{n^2}{\sum \frac{1}{x}}$ B. $\frac{\sum fx}{\sum f}$ C. $\frac{n}{\sum \frac{1}{x}}$ D. $\frac{n}{\sum x}$
16. The equation $x^3 + 3x - 1 = 0$ is:
A. Quadratic B. Bi-Quadratic C. Cubic D. None of these
17. The location of Q_1 is _____ item.
A. $\frac{n}{2}$ th B. $\frac{3n}{2}$ th C. $\frac{n}{4}$ th D. $\frac{n}{3}$ th
18. If two lines are antiparallel then the angles between them is:
A. 0° B. $\frac{\pi}{2}$ C. π D. 2π
19. Sum of cube roots of unity is:
A. 1 B. 0 C. -1 D. 2
20. If a line is perpendicular to its radius at its end points then the line is:
A. Tangent B. Secant C. Normal D. None of these

Note: Attempt any FIVE questions:-

- Q 2:** Find all the trigonometric ratios of 90° . (6)
 - Q 3:** Find a if $(y+13)(y+a)$ have no linear factor. (6)
 - Q 4:** If $X = \{1,2,3,4\}$ and $Y = \{a,b,c,d\}$, write 1-1 function from X to Y and Y to X. (6)
 - Q 5:** Solve for x: $5^{x+1} + 5^{2-x} = 126$ (6)
 - Q 6:** Circumscribe a regular hexagon about a given circle of radius 5 cm. (6)
 - Q 7:** Resolve into partial fraction $\frac{x^2}{(x-1)^2(x+1)}$ (6)
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CADET COLLEGE MOHMAND
Class XI (4th Special Entry) - May 2024

Time: 1 hour

Paper: Physics

Marks: 50

Q 1: Choose the correct option and shade the appropriate bubble in the Answer Sheet:- (20)

1. The property of medium to bend the light is called:
A. Diffraction B. Reflection C. Refractive index D. Dispersion
2. In spring mass system if mass is increased 4 times then change in time period will be:
A. 2T B. 1T C. 4T D. 3T
3. A step up transformer increases:
A. Power B. Voltage C. Current D. Energy
4. If the angle of incidence is 45° then the angle of reflection will be:
A. 90° B. 60° C. 45° D. 30°
5. Which of the following cannot be used to measure the pressure:
A. atm B. Pa C. bar D. kgm^{-2}
6. The unit of electric potential is _____.
A. Farad B. Coulomb C. NC^{-1} D. Volt
7. A capacitor 'C' has a charge Q, the total charge on its plate are:
A. Q,Q B. Q,0 C. Q,-Q D. Q/2, -Q/2
8. What is angle on incidence for total internal reflection in denser medium
A. 90° B. 180° C. >critical angle D. < critical angle
9. According to Snell's law, what happens to the angle of refraction when light passes from a rarer medium into a denser medium?
A. It increases. B. It decreases. C. It remains constant. D. It becomes zero.
10. The branch of physics that deals with the study of heat and temperature and their relation to energy and work:
A. Thermodynamic B. Electrostatics C. Optics D. Mechanic
11. Which of the following statements is true about power in an electric circuit:
A. It is the rate of change of energy. B. It is the product of current and voltage.
C. It is the product of charge and voltage. D. It is the product of current and resistance.
12. For convex lens if $2f = 100 \text{ cm}$, what is its power of convergence?
A. 1D B. 2D C. 0.5D D. 4D
13. The potential of charge when it is moved in circular path in electric field:
A. 10 volt B. 0 joule C. 0 volt D. None of these
14. Doubling the tangential velocity will increase centripetal force _____ times?
A. 2 B. 3 C. 4 D. 5
15. What is the speed of propagation of FM radio wave?
A. $3 \times 10^{12} \text{ m/s}$ B. $6 \times 10^{12} \text{ m/s}$ C. $3 \times 10^8 \text{ m/s}$ D. $6 \times 10^9 \text{ m/s}$
16. A converging mirror with a radius of 20 cm creates a real image 30 cm from the mirror. What is the object distance?
A. -5.0 cm B. -7.5 cm C. -15 cm D. -20 cm
17. The amount of charges stored per unit voltage input in capacitor is called:
A. Field intensity B. Work done C. Capacitance D. None of these
18. The device which protect a circuit from over loading is called:
A. Fuse B. Circuit breaker C. Both D. None of these
19. The processed form of data is called:
A. Signal B. Information C. Software D. None of these
20. Which derived unit is equivalent to Tesla?
A. NmA^{-1} B. NAm^{-1} C. $\text{NA}^{-1}\text{m}^{-1}$ D. AmN^{-1}

Note: Attempt any SIX questions. All questions carry equal marks. (6 x 5 = 30)

Q 2: Define Kinetic Energy. Derive the relation used for the $\text{K.E} = \frac{1}{2}mv^2$.

Q 3: Differentiate between loudness and intensity of sound by giving suitable example.

Q 4: Calculate the speed of light in zircon with index of refraction $n=1.923$, a material used in jewelry to replace diamond?

Q 5: Differentiate between EMF and Potential Difference.

Q 6: State and explain torque principle.

Q 7: Show that turning effect of current carrying conductor depends upon length of conductor inside magnetic field.

Q 8: Sketch and describe the construction and working of AC generator.

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CADET COLLEGE MOHMAND
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Time: 1 hour

Paper: English

Marks: 50

Instruction: Complete paper is required to be solved on Answer sheet.

- Q 1: Do as directed:-** (10)
- Music is a / an _____ noun. (Abstract, Proper, Collective, Common)
 - him on flat advices all my fell (Rearrange the sentence into meaningful sentence)
 - His extremely catching handwriting inspired everyone. The underlined part of the sentence is: (Adjective phrase, Noun phrase, Adverb phrase)
 - Measles _____ infectious. (Use proper helping / auxiliary verb)
 - I am indebted _____ you for your help. (Use Preposition)
 - They sent the parcel on monday. (Change the voice)
 - He said, "They are the real strength of the society". (Change the narration)
 - Choose the correct spelling:
A. Tidy B. Tidey C. Tiedy D. Tiidey
 - Ali had taken my meal. (Change into future perfect tense)
 - It was dark and dim in the forest. (Write figure of speech used in the line)

- Q 2: Translate into English:-** (05)

- ہم نے دریا پار کیا۔
- کیسی ٹھنڈی ٹھنڈی ہوا چل رہی ہے۔
- تھوڑی دیر رکو۔
- صبر کا پھل میٹھا ہوتا ہے۔
- اپنا مشق ہمیشہ جاری رکھیں۔

- Q 3: Use any five pair of words in your own sentences:-** (05)

- Accede, Exceed ii. Medal, Meddle iii. Advice, Advise
- Caste, Cast v. Council, Counsel vi. Board, Bored

- Q 4: Translate into Urdu:-** (05)

- Beware of pick pockets.
- She calls a spade a spade.
- A swam of bird is always a beautiful sight.
- Evil communication corrupts good manners.
- Sorry for the inconvenience.

- Q 5: Write a letter to your friend telling him about the importance of physical fitness.** (10)

- Q 6: Write an essay of about 200-250 words on 'Education empowers the youth'.** (15)

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