CADET COLLEGE MOHMAND
Class XI (3rd Special Entry) - June 2023

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 bending of waves around the edges of the obstacle is:
   A. Reflection B. Damping C. Refraction D. Diffraction
2. Minimum echo distance is reduced in _____.
   A. Space B. Winter C. Spring D. Summer
3. The focal length of convex mirror with radius of curvature 10cm is _____.
   A. +5cm B. -5cm C. +10cm D. -10cm
4. If the angle of incidence is 45°, the angle of reflection will be:
   A. 90° B. 180° C. 45° D. 30°
5. Dryer of washing machine is application of_____.
   A. Momentum B. Speed C. Centrifugal Force D. Velocity
6. The unit of electric field intensity is _____.
   A. J/C B. N.C C. N/C D. J.m
7. A Step up transformer increases _____.
   A. Power B. Energy C. Voltage D. Current
8. During lunar eclipse, colour of moon become red because of:
   A. Scattering of blue light by earth atmosphere B. Surface of moon is red
   C. Sun light is red D. None of these
9. What type of nuclear decay most often produces the greatest mass and charge loss?
   A. Alpha decay B. Beta decay C. Gamma Decay D. None of these
10. The Boolean equation for OR gate is _____.
    A. $X = AB$ B. $X = \overline{A+B}$ C. $X = \overline{AB}$ D. $X = \overline{A+B}$
11. The transformer works on:
    A. Principle of mutual induction B. Principle of D.C motor
    C. Principle of A.C generator D. Principle of self induction
12. Which of the following does not affect the period of mass-spring system?
    A. Amplitude B. Mass
    C. Spring constants D. All of these
13. Insect can walk on surface of water due to _____.
    A. Viscosity B. Surface tension C. Elasticity D. Power
14. Value of tangent 45° is _____.
    A. 0 B. 1 C. -1 D. 1.732
15. What is the speed of propagation of FM radio wave?
    A. 3×10^{12} m/s B. 6×10^{12} m/s C. 3×10^{8} m/s D. 6×10^{9} 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. Origin of energy from the sun and stars is:
    A. Fission B. Fusion
    C. Radioactivity D. None of these
18. Speed of sound at 50 °C on a dry day will be:
    A. 341 ms^{-1} B. 361 ms^{-1} C. 351 ms^{-1} D. 331 ms^{-1}
19. Maximum harmless current is:
    A. 1mA B. 5mA C. 50mA D. 1000mA
20. Distance between consecutive crests is 4.0m and is travelling 9.0m in 4.5s. What is frequency of these waves?
    A. 0.5Hz B. 1.5Hz C. 2.0Hz D. 3.0Hz

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

Q 2: Under what conditions a convex lens produces a virtual image?

Q 3: State and explain Joule's law. Also prove it.

Q 4: If the current through primary coil changes from -5A to +5A in 0.05 sec such that the induced emf is 2.8v. What is mutual inductance?

Q 5: Using law of gravitation, calculate the mass of earth?

Q 6: What is isolated system? Explain law of conservation of momentum with an example.

Q 7: Derive 3rd equation of motion by using speed-time graph.

Q 8: Show that turning effect of current carrying conductor depends upon length of conductor inside magnetic field.

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CADET COLLEGE MOHMAND

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Time: 1 hour	Paper: Chemistry	Marks: 50

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

1. Which one is weak acid?
   A. HNO_3 B. HCl C. H_2SO_4 D. H_2CO_3
2. _____is a plant hormone that triggers fruit ripening.
   A. Methane B. Ethane C. Ethene D. Acetylene
3. Which oxidizing agent is used in Baeyer's test for alkenes?
   A. $K_2Cr_2O_7$ B. HNO_3 C. $KMnO_4$ D. H_2SO_4
4. Blister copper is refined through:
   A. Concentration B. Reduction C. Smelting D. Electrolysis
5. Fehling's and Tollen's tests are used to identify:
   A. Phenols B. Ketones C. Aldehydes D. Alkanes
6. Temporary hardness of water is due to:
   A. $Ca(HCO_3)_2$ B. $CaCl_2$ C. $MgSO_4$ D. $MgCl_2$
7. Natural gas is mainly composed of:
   A. CH_4 B. C_3H_8 C. C_2H_6 D. C_2H_2
8. Which one of the following decolourises Br_2 water?
   A. Ethane B. Ethene C. Propane D. Methane
9. Which of the following is not a heterocyclic compound?
   A. Furan B. Thiophene C. Pyridine D. Anthracene
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. Which of the following isotope is used as a smoke detector?
    A. Carbon-14 B. Californium-241 C. Krypton-85 D. Amercium-241
12. The example of oligosaccharides is:
    A. Pentose B. Starch C. Maltose D. Glucose
13. All steps are used for the extraction of metals except:
    A. Roasting B. Smelting C. Evaporation D. Bessemerization
14. Which of the following is not considered as Bronsted-Lowry base?
    A. OH^- B. NaOH C. NH_3 D. H_2O
15. Which of the following is mineral acid?
    A. HCOOH B. H_2SO_4 C. CH_3COOH D. C_2H_5COOH
16. Formula of Epsom is:
    A. $MgSO_4.7H_2O$ B. $MgSO_4$ C. $MgSO_4.2H_2O$ D. $CaSO_4.2H_2O$
17. Heat capacity of water is:
    A. 4.18 j/g C° B. 6 kj/mol C. 41 kj/mol D. 460 kj/mol
18. Matte is a mixture of:
    A. CuS and FeS B. Cu_2S and FeS C. Cu_2O and FeS D. Cu_2O and FeO
19. At 0 C° the density of water becomes:
    A. 0.90 g/cm^3 B. 0.91 g/cm^3 C. 0.93 g/cm^3 D. 1 g/cm^3
20. The minimum concentration of Chlorine in the swimming pool water is _____.
    A. 0.5 mg/dm^3 B. 2.5 mg/dm^3 C. 1.5 mg/dm^3 D. 4.5 mg/dm^3

Note: Attempt any SIX questions:-

Q 2: Why organic compounds are volatile in nature? **(5)**

Q 3: What is slaked lime? How slaked lime is produced? **(5)**

Q 4: Distinguish between fats and oils. **(5)**

Q 5: (a) Define the Avogadro's number. **(2)**
(b) Calculate the number of moles in 22 grams of ammonia? **(3)**

Q 6: In the equilibrium mixture, the concentration of hydrogen and iodine is 0.04 moles per dm^3 each while that of hydrogen iodide is 0.08 moles per dm^3. Find Kc of the following reaction.

$$H_2 + I_2 \rightleftharpoons 2HI$$ **(5)**

Q 7: What is electron affinity? How shielding effect and size of an atom effect electron affinity? **(5)**

Q 8: Write down the equations for the preparation of alkanes, alkenes and alkynes. **(5)**

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CADET COLLEGE MOHMAND

Class XI (3rd Special Entry) - June 2023

Time: 1 hour	Paper: Mathematics	Marks: 50

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

1. If discriminant $b^2 - 4ac = 0$ then the roots are:
   A. Real B. Imaginary C. Equal D. Zero
2. $(i^2)(i^3) =$ _____.
   A. -1 B. 1 C. $-i$ D. i
3. If "A" has three elements and B has two elements then number of binary relations in A×B is_____.
   A. 2×3 B. 3×2 C. 2^5 D. 2^6
4. If f is a function from A to B, then f is onto if:
   A. Range f=B B. Range f≠A C. Dom f=A D. None of these
5. $\cot\theta =$ _____
   A. $\frac{\sin\theta}{\cos\theta}$ B. $\frac{1}{\cos\theta}$ C. $\frac{\cos\theta}{\sin\theta}$ D. $\frac{1}{\sin\theta}$
6. $Tan\frac{\pi}{4} =$ _____
   A. 1 B. $\sqrt{2}$ C. 0 D. 2
7. Solution of the equation $0 = x^2 - 3x - 4$ is _____.
   A. 4,-1 B. -4, 1 C. 4, 1 D. -4, -1
8. The point (-3, 4) lies in _____ Quadrant.
   A. I B. II C. III D. IV
9. How many tangents can be drawn from a point outside the circle?
   A. 1 B. 2 C. 3 D. 4
10. The solution set of $\sqrt{x} = 10$ is
    A. 100 B. 10 C. -10 D. ∅
11. Characteristic of log 45678 is:
    A. 5 B. 2 C. 4 D. 3
12. $\log_{\sqrt{3}} x = 16$ then the value of x is _____.
    A. 6156 B. 5616 C. 6561 D. 5665
13. $\sin^2\theta + \cos^2\theta =$ _____
    A. 1 B. 2 C. 3 D. 4
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. The median of 63, 65, 66, 67, 69 is:
    A. 66 B. 63 C. 67 D. 69
16. The equation $x^4 + 3x - 1 = 0$ is :
    A. Quadratic B. Bi-Quadratic C. Both D. None of these
17. Which one is not a correct postulate for congruent triangles?
    A. S.S.S B. S.A.S C. A.A.A D. A.S.A
18. If two lines are antiparallel then the angles between them is:
    A. 0° B. 90° C. 180° D. 360°
19. Sin (- 350°) lies in _____ quadrant.
    A. I B. II C. III D. IV
20. The third proportion of x and y is _____ .
    A. xy B. $\frac{x}{y}$ C. $\frac{y^2}{x}$ D. $\frac{x^2}{y^2}$

Note: Attempt any FIVE questions:-

Q 2: Show that $(-1 + i\sqrt{3})^3 + (-1 - i\sqrt{3})^3 = 16$ **(6)**

Q 3: Divide first complex number by second $z_1 = 2 + i$, $z_2 = 5 - i$ **(6)**

Q 4: If X= {1,2,3,4} and Y= {5,6,7,8} write bijective from X to Y and Y to X. **(6)**

Q 5: Prove that $\frac{sinx}{1+cosx} = \frac{1-cosx}{sinx}$ **(6)**

Q 6: Prove that the angle in a semi circle is a right angle. **(6)**

Q 7: Resolve into partial fraction $\frac{3x+2}{x^2-x-2}$ **(6)**

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CADET COLLEGE MOHMAND

Class XI (3rd Special Entry) - June 2023

Time: 1 hour	Paper: Biology	Marks: 50

Q 1: Choose the correct option and shade the appropriate bubble in the Answer Sheet:- (15)

1. The disease of Kwashiorkor and marasmus occur due to:
   A. Mineral deficiency B. Over intake of nutrients C. Protein energy malnutrition D. Ulcer
2. All of these are hormones except:
   A. Insulin B. Thyroxin C. Glucagon D. Pepsionogen
3. In which kingdom would you classify unicellular eukaryotes?
   A. Fungi and plantae B. Fungi and Monera C. Only protista D. Only Fungi
4. Which form of nitrogen is taken by producers of the ecosystem?
   A. Nitrogen gas B. Ammonia C. Nitrites D. Nitrates
5. If one allel is completely dominant over the other allel in F_1 generation is called:
   A. Complete dominance B. Incomplete dominance C. Co-dominance D. Over dominance
6. Which of these is an anti-viral protein?
   A. Urokinase B. Glucagon C. Insulin D. Interferon
7. The sphincter that serves as a valve between the stomach and small intestine is:
   A. Cardiac sphincter B. Pyloric sphincter C. Glossopharyngeal sphincter D. Intestinal sphincter
8. The disorder in which there is an accumulation of uric acid in joints is called:
   A. Gout B. Rheumatoid arthritis C. Osteoporosis D. Osteo-arthritis
9. A related group of genera comprises:
   A. An order B. A family C. A class D. A phylum
10. Which of the following cellular organelles have their own DNA?
    A. Chloroplast B. Nucleus C. Mitochondria D. All of these
11. Which is not part of hind brain?
    A. Pons B. Medulla oblongata C. Cerebrum D. Cerebellum
12. Al Qanun fil-Tibb is the famous book of:
    A. Bu-Ali Sina B. Jabir bin Hayyan C. Abdul Malik Asmai D. Ibn Nafees
13. Bone to bone connection is called:
    A. Ligament B. Tendon C. Cartilage D. Marrow
14. Over grazing results in:
    A. Soil erosion B. Retention of useful species C. Productive soils D. All of these
15. Growth hormones are secreted by _____ gland.
    A. Thyroid B. Pituitary C. Adrenal D. None of these

Q 2: Fill in the blanks:- (5)

1. Non-protein part of enzyme is called _____.
2. Chromosomes are best seen at _____ stage.
3. The relationship between prey and predator is called _____.
4. ABO blood group system was first discovered by _____.
5. _____ is a group of related families.

Note: Attempt any SIX questions. If needed, draw a labeled diagram: -

Q 3: What do you know about fluid mosaic model of plasma membrane? **(5)**

Q 4: Briefly explain the axial skeleton of human? **(5)**

Q 5: How kidney is called osmoregulatory organ? **(5)**

Q 6: Explain life cycle of angiosperm. **(5)**

Q 7: Explain Watson and Crick model of DNA? **(5)**

Q 8: Discuss asexual reproduction in plants. **(5)**

Q 9: Write note on structure and function of human eye. **(5)**

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CADET COLLEGE MOHMAND, MAMAD GAT
ENTRY TEST SAMPLE PAPER FOR CLASS – XI
PAPER: MATHS

Maximum Marks: 50 **Time: 50 minutes**

Name: _____ **Roll No:** _____

Q1; Choose the correct option. **(20)**

i. Suppose A & B are 3 x 5 matrices then dimensions of A + B is _____
5 x 3 | 3 x 3 | 5 x 5 | 3 x 5 ii.

ii. Which of the following is a surd.
$3\sqrt{8}$ | $2\sqrt{\ }$ | $3\sqrt{\ }$ | $\sqrt{52\sqrt{\ }}$

iii. $x^6 + y^6 =$. $(x^3+y^3)^2$ | $(x^3+y^3)(x^3-y^3)$ | $(x+y)^6$ | None of these

iv. If (-5, 0) be a point, then abscissa is ___
0 | -5 | { } | 0

v. In a set of data 41, 43, 47, 51, 52, 59 median is _____
51 | 47 | 52 | None of these

vi. The line which intersects the circle in two points is _____
Secant | Chord | Diameter | None of these

vii. The line which intersects the circle in one point is _____
Secant | Diameter | Chord | Tangent

viii. The angle in a semi-circle is a _____
Acute angle | Obtuse angle | Right angle | None of these

ix. If $A \begin{matrix} a & b \\ c & d \end{matrix}$, then $|A|$ _____.
ab-cd | ad-bc | ad+bc | 0

x. 0.25×10^{-2} in scientific notation is _____.
10^{-2} | 0.25×10 | 2.5×10^{3} | 2.5×10^{-3}

xi. Factors of $x^2 - 4x + 3$ are.
(x - 3) (x + 1) | (x - 1) (x + 3) | (x – 1) (x - 3) | None of these

xii. L.C.M of $(a - b)^4$ and $(a - b)^2$ is _____.
$(a - b)^4$ | $(a - b)^3$ | $(a - b)^2$ | $(a - b)^6$

xiii. $\frac{2}{30}$ radians = _____ degree.
30 | 150 | 180^0 | 360^0

xiv. A _____ is a chord that contains the centre of a circle.
Radius | Circumference | Diameter | None of these

xv. In a set of data 41, 43, 47, 51, 57, 52, 59 median is _____.
51 | 47 | 52 | 59

xvi. The sum of the cube roots of unity is _____.
One | Two | Zero | None of these

xvii. If $2^x = ½$ then x = _____.
1 | -1 | 0 | 2

xviii. Sum of the measures of interior angles of a quadrilateral is _____
2 right angels | 4 right angels | 3 right angles | None of these

xix. In rectangle, if length = 4cm, width = 3cm then perimeter is _____ cm.
16 | 20 | 12 | 14

xx. If 9x = 3, then x = _____
2 | ½ | -2 | 3

SECTION –B **Time: 30 Minutes**

Q2; Attempt any five (5) questions. **(30)**

i. Age of mother is 13 times the age of her daughter. It will be only five times after four years. Find their present ages.

ii. Solve $\frac{x}{3} \quad \frac{x}{12} \quad \frac{1}{24}$ by quadratic formula.

iii. If X = {1, 2, 3, 4}, Y = {5, 6, 7, 8} then write.
i. A one–one function from X to Y.
ii. A bijective function from Y to X.

iv. If $Z_1 = 3 + 4i$, $Z_2 = 3-2i$ then find quotient $\frac{Z_1}{Z_2}$.

v. Factorize $1 + 2uv - u^2 - v^2$.

vi. Find the value of k if the roots of $x^2 - 7x + k = 0$ differ by unity

CADET COLLEGE MOHMAND

Class XI (3rd Special Entry) - June 2023

Time: 1 hour	Paper: English	Marks: 50

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

Q 1: Do as directed:- **(10)**

i. Paradise is a _____ noun. (Abstract, Compound, Collective, Common)

ii. To her friend she hospital with been taken the has
(Rearrange the sentence into meaningful sentence)

iii. We were enjoying the summer rain. The underlined part of the sentence is:
(Adverbial phrase, Noun phrase, prepositional phrase)

iv. I saw Waqar yesterday. He was upset. The reference used in the sentence is:
(Anaphoric, Cataphoric, Pythagoric)

v. Slow down before you get_____ an accident. (into, in, to)

vi. Do not bother me right now. (Change the voice)

vii. The boy said to me, "Where will you dine?" (Change the narration)

viii. Choose the correct spelling:
A. Niche B. Neche C. Neiche D. Nieche

ix. I am playing Hockey. (Change into future continuous tense)

x. The curtains danced in the breeze. (Write figure of speech used in the line)

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

i۔ کام چور نہ بنو۔

ii۔ مالِ مفت دلِ بے رحم۔

iii۔ تیرا کی میرا پسندیدہ مشغلہ ہے۔

iv۔ وقت کسی کا انتظار نہیں کرتا۔

v۔ ہم سب محبِ وطن پاکستانی ہیں۔

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

i. Eminent, Imminent ii. A lot, Allot iii. Complement, Compliment

iv. Groan, Grown v. Hale, Hail vi. Pause, Paws

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

i. You have brought a disgrace to the family.

ii. Death keeps no calendar.

iii. Pour some more for me.

Iv. It has been drizzling today since morning.

v. A bird in hand is worth two in the bush.

Q 5: Write a letter to your friend telling him about your future goals and objectives. **(10)**

Q 6: Write an essay of about 200-250 words on 'A dream does not become reality through magic; it takes sweats, determination and hard work'. **(15)**

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