_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

PART-I

_____

_____

ENGLISH (50 MARKS)

_____

_____

_____

_____

_____

_____

_____

_____

Q.1   Insert the correct option i.e. A / B / C / D in the empty box opposite to each part.

Each part carries one mark.

i.   The poem having fourteen line is called:

A. Sonnet   B. Elegy   C. Ode   D. Epic

ii.   He is like a Lion. (choose the correct figure of speech)

A.   Alliteration   B. Metaphor   C. Simile   D. Imagery

iii.   Choose the correct spelling:

A. Embarrass   B. Embaras   C. Embarras   D. Embarass

iv.   She failed in exam _____ she was not sound in health:

A. When   B. While   C. As   D. So

v.   Choose the correct spelling:

A.   Persaunification   B.   Personefication

C.   Personification   D.   Personificashion

vi.   I am feeling dizzy. The underline word is:

A. Noun   B. Verb   C. Adverb   D. Adjective

vii.   Let the door be _____. Use correct form of verb:

A. Open   B. Opened   C. Opening   D. None of these

viii. He proved himself ____ honorable person from every perspective. (insert correct article)

A. An   B. The   C. A   D. No article needed

ix.   Libraries are the evidence of **grandeur** of a civilization. The underline word means,

A. Splendor   B. Brightness   C. Charm   D. Attraction

x.   "Valour" is a/an

A. Countable noun   B. Material noun

C. Abstract noun   D. Uncountable noun

xi.   The hen is laying eggs. What tense is this?

A.   Present indefinite   B.   Present continuous

C.   Present perfect   D.   Present perfect continuous

xii.   'Many' is a/an

A. Indefinite pronoun   B. Reflexive noun

C. Relative pronoun   D. Distributive pronoun

Q. 24 Write a note on uses of organic compounds.

_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____

Q. 23 Write down importance of equilibrium constant.

_____
_____
_____
_____
_____
_____

xiii.   Students **who are intelligent** understand adverbs. The underlined phrase is

A. Adverb clause   B. Noun clause

C. Adjective clause   D. Preposition clause

xiv.   Mehreen bought (few, a, chocolate, dark, triangular) bars to the birthday party. Choose the correct order of adjectives.

A. A few triangular dark chocolates   B. A few dark triangular chocolates

C. A dark few triangular chocolates   D. A triangular few dark chocolate

xv.   They will demonstrate safety precautions. Choose the right option.

A. Safety precautions would be demonstrated by them.

B. Safety precautions will be demonstrated by them.

C. Safety precautions will demonstrated by them.

D. Safety precautions will be demonstrate by them.

SECTION – B (Marks 16)

Q.2:   Answer the following questions in about 30 to 40 words each. Each part carries equal marks.   (2x 5=10)

(i)   How does the Quran describe the personality of Rasool (SAW)? (Hazrat Muhammad The embodiment of justice)
_____
_____
_____
_____

(ii)   Who was Joe? How did he treat Pip? (Great Expectation)
_____
_____
_____
_____

(iii)   Why it is necessary to keep away soap from wound? (First aid)
_____
_____
_____
_____

(iv)   How has the writer spent his summer vacation? (Little by Little one walks far)

_____
_____
_____
_____

(v)   What do decorations on door and windows symbolize? (Chinese New Year)

_____
_____
_____
_____

Q.3:   Read the following stanza carefully and answer the questions given at the end:(6)

          Once or twice though you should fail,
          If you would at last prevail,
          Try again
          If we strive,tis no disgrace;
          'Though we did not win the race--,
          What should you do in that case,
          Try again

Questions:

(i)   How is failure not a disgrace?

_____
_____
_____
_____
_____

(ii)   How many times should we try and why?

_____
_____
_____
_____
_____

(iii)   What is the name of the Poet?

_____
_____
_____
_____
_____

_____
_____
_____
_____
_____
_____
_____
_____
_____

Q. 22: On what basis DNA differs from RNA?

_____
_____
_____
_____
_____
_____
_____
_____
_____
_____

v.   Why water treatment is essential?

_____ (5)
_____
_____
_____
_____
_____
_____
_____
_____

SECTION – C (Marks 20)

Note: Attempt All Questions. All questions carry equal marks.   (4x5=20)

Q. 21: Discuss the methods of removing temporary hardness of water with the help of chemical reaction.

_____
_____
_____
_____
_____
_____
_____
_____
_____

SECTION – C (Marks 19)

Q.4:   Translate the given sentences into English.   **(5)**

a.   وہ دو گھنٹے سے کھیل رہی ہے۔

_____

b.   کیا آپ کل لاہور جائینگے؟

_____

c.   وہ شیر کی طرح تیز ہے۔

_____

d.   وہ گانا نہیں گائے گا۔

_____

e.   ہم گراونڈ میں فٹ بال کھیل رہے تھے ۔

_____

Q.5:   **Translate the given sentences into Urdu.**   **(5)**

a.   The Earth revolves around the sun.

_____

b.   He admired the poetry of Shakespeare.

_____

c.   Mom will have cooked our favorite meal.

_____

d.   The flowers didn't blossom completely yesterday.

_____

e.   Students will spend wakeful nights in exam.

_____

Q.6: Write a story in the given space based on the prompt /sketch /picture and give it an appropriate title. Use the given space only to write your story. (9)

Suitable Title: _____(2)

Plot	2
Diction	1
Language	2
Characters	2

Maria is a small girl. She goes to school regularly. One day her mother surprised her with a gift when she returned from school. The gift was

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

Lesson/Moral: _____ (1)

_____

_____

_____

_____

_____

iii.   Differentiate between open and closed chain compounds with help of examples.

_____

_____

_____

_____

_____

iv.   Write down equation when alkene reacts with
A. $KMnO_4$ B.   Halogen

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

xiv. Temporary hardness is removed by adding:

    A. Quick lime   B. Slacked lime   C. Limestone   D. Lime water

xv. Which molecule contains carbon-carbon triple bond?

    A. Ethane   B. Ethyne   C. Ethene   D. Benzene

Section - B

Q. 20 Attempt all parts. All parts carry equal marks.   (5x3=15)

i. Write down the condition required for chemical equilibrium.

ii. How can you prepare an alkane by the reduction of Alkyl Halides?

PART-II

MATHEMATICS (50 MARKS)

Q.7: Insert the correct option i.e. A / B / C / D in the empty box provided opposite to each part. Each part carries one mark.

i. If $b^2 - 4ac > 0$ and not a perfect square then the roots of $ax^2 + bx + c = 0$ are

   A. rational   B. irrational   C. imaginary   D. none

ii. If α, β are the roots of $x^2 - x - 1 = 0$ then product of 2α, 2β is

   A. 2   B. − 2   C. 4   D. - 4

iii. In a ratio a: b, a is called _____

   A. relation   B. antecedent   C. consequent   D. None of these

iv. A function of the form $f(x) = \frac{N(x)}{D(x)}, with\ D(x) \neq 0, where\ N(x)\ and\ D(x)$ are polynomials in x is called _____

   A. An identity   B. An equation   C. A fraction   D. None of these

v. If $A \subseteq B$, then $A - B$ is equal to _____

   A. A   B. B   C. ∅   D. B-A

vi. In a cumulative frequency, polygon frequency are plotted against ____

   A. Midpoint   B. Upper class boundaries

   C. Class limits   D. None of these

vii. $Cosec^2\theta - Cot^2\theta$ is equal to

   A. − 1   B. 1   C. 0   D. $\tan \theta$

viii. If the number of elements in Set A is 3 and then $A \times A$ has how many binary relations

   A. 2^3 B. 2^9 C. 2^0 D. 2^7

ix. $\frac{1}{(1+sin\theta)} + \frac{1}{1-sin\theta} =$ --------------------------------

   A. $2Sec^2\theta$ B. $2Cos^2\theta$ C. $sec^2\theta$ D. $Cos\theta$

x. Right bisector of the chord of a circle always passes through the ____.

   A. Radius   B. Circumference   C. Center   D. Diameter

xi. The distance of any point of the circle to its center is called

   A. Radius   B. Diameter   C. A chord   D. An arc

Q. 19: Insert the correct option i.e. A / B / C / D in the empty box provided opposite each part. Each part carries one mark.

i. The conjugate acid of HPO_4^{2-} is:

   A. PO_4^{3-} B. $H_2PO_4^{2-}$ C. $H_2PO_4^-$ D. H_3PO_4

ii. In an irreversible reaction dynamic equilibrium:

   A. Which proceeds from left to right   B. In which reactants react to form products

   C. Which slowdowns gradually   D. Which speeds up gradually

iii. The term **'Buta'** stands for how many carbon atoms :

   A. 3   B. 4   C. 5   D. 6

iv. Which type of coal has 80 % of carbon contents?

   A. Peat   B. Lignite   C. Bituminous   D. Anthracite

v. In combustion reaction of methane limited supply of oxygen produce:

   A. CO_2 B. NO_2 C. CO   D. H_2

vi. Which one of the following is a fat-soluble vitamin?

   A. A   B. E   C. K   D. All of these

vii. Which one of these pollutants are not found in car exhaust fumes?

   A. CO   B. O_3 C. NO_2 D. SO_2

viii. A disease that causes bone and tooth damage is :

   A. Fluorosis   B. Hepatitis   C. Cholera   D. Jaundice

ix. The nitrogen present in urea is used by plants to synthesize:

   A. Sugar   B. Fats   C. Protein   D. DNA

x. Which one of the following is a Lewis base?

   A. NH_3 B. BF_3 C. $AlCl_3$ D. H^+

xi. Main component of natural gas is:

   A. Methane   B. Ethan   C. Propane   D. Butane

xii. Oxidation of alkenes produce:

   A. Glyoxal   B. Glycol   C. Oxalic Acid   D. Formic Acid

xiii. Normally rain water is weakly acidic because of:

   A. SO_2 gas   B. SO_3 gas   C. NO_2 gas   D. CO_2 gas

xii. Locus of a point in a plane equidistant from a fixed point is called _____.

A. Radius   B. Diameter   C. Circumference   D. Circle

xiii. A tangent line intersects the circle at:

A. Three points   B. Two points   C. Single point   D. No point

xiv. The arcs opposite to incongruent central angles of a circle arc always:

A. Congruent   B. Incongruent   C. Over lapping   D. Parallel

xv. The lengths of two transverse tangents to a pair of circles are:

A. Unequal   B. Equal   C. Overlapping   D. None of above

SECTION – B (MARKS: 15)

Q 8. Attempt all parts. All parts carry equal marks. (5x3=15)

i. Prove that $\tan^4 \theta + \tan^2 \theta = \tan^2 \theta \sec^2 \theta$

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

ii. A road is inclined at an angle 5.7°. Suppose that we drive 2 miles up this road starting from sea level. How high above sea level are we?

_____

_____

_____

_____

_____

PART-IV

CHEMISTRY (50 MARKS)

iii.   Simplify $3^{2x+2} = 12.3^x - 3$

iv.   The data is given below :-

1500,1550,1650,1750,1800. Find the mean by using indirect method and direct method.

Q.18: Explain α, β and Υ decay with examples.   (5)

Q.17: iii.   What is capacitor? Derive relation for **C$_{eq}$** in case when capacitors are connected in series and parallel.   **(1+4)**

v.   Find the ratio $3a + 4b : 5a + 7b$ if $a : b = 5 : 8$

Note:- Attempt all question   **(Marks 4x5 = 20)**

Q.9   Use synthetic division to find the values of l amd m if $(x + 3)$ and $(x - 2)$ are the factors of polynomial $x^3 + 4x^2 + 2lx + m.$

Q.10: Using theorem of Componendo–dividendo, Find the value of $\frac{S-3p}{s+3p} + \frac{S+3q}{s-3q}$ if $S = \frac{6pq}{p-q}$

Q.16: What is mutual induction? Explain its role in power transmission. **(2+3)**

SECTION-C (MARKS: 20)

Q.15: Define and explain the Lens Equation. Write sign conventions for Lenses. (2+3)

Q.11: If two chords of a circle are congruent then they will be equidistant from the center.

_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____

Q.12 The measure or central angle of a minor arc of a circle, is double that of angle subtended by the corresponding major arc?

_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____

iii.   why an ammeter is always connected in series?

_____
_____
_____
_____
_____
_____
_____
_____
_____

iv.   Why two thin cans with a string stretched between them could be a better way to communicate than merely shouting through the air?

_____
_____
_____
_____
_____
_____
_____
_____
_____

v.   NAND gate is the reciprocal of AND gate. Discuss.

_____
_____
_____
_____
_____
_____

xiv. If the length of copper wire is 1 m and its diameter is 2 mm, then find the resistance of this copper wire. ☐

    A. 0.74×10^{-2} Ω   B. 0.64×10^{-2} Ω

    C. 0.54×10^{-2} Ω   D. 0.44×10^{-2} Ω

xv. A step-up transformer has a turn ratio of **1: 100**. An alternating supply of 20 V is connected across the primary coil. What is the secondary voltage? ☐

    A. 5000 V   B. 4000 V   C. 3000 V   D. 2000 V

<div align="center">

Section-B (Marks: 15)

</div>

Q.14: Attempt all parts. All Parts carry equal marks.   (**Marks 5×3=15**)

i.   A power station generates 500MW of electrical power which is fed to a transmission line.

what current would flow in a transmission line is the input voltage is 250k?

ii.   Under what conditions will a converging lens form a virtual image? Also draw diagram.

PART- III

PHYSICS (50 MARKS)

Q.13: Insert the correct option i.e. A / B / C / D in the empty box provided opposite each part. Each part carries one mark.

i. Which of the following devices can be used to produce both transverse and longitudinal waves?
   A. String   B. Ripple tank   C. Helical spring   D. Tuning fork

ii. A simple pendulum completes one vibration in two seconds. Calculate its length, when $g = 10.0 \text{ m / s}^2$: -
   A. 1.02m   B. 2.02m   C. 3.02m   D. 4.02m

iii. Which form of energy is sound?
   A. Electrical   B. Mechanical   C. Thermal   D. Chemical

iv. A student clapped his hands near a cliff and heard the echo after 5 s. What is the distance of the cliff from the student if the speed of the sound is taken as 346 m/s?:-
   A. 870m   B. 880m   C. 865m   D. 850m

v. An object is 14 cm in front of a convex mirror. The image is 5.8 cm behind the mirror. What is the focal length of mirror?
   A. -4.1 cm   B. -8.2 cm   C. -9.9 cm   D. -20cm

vi. An object and its image in a concave mirror are of the same height, yet inverted, when the object is 20 cm from the mirror. What is the focal length of the mirror?
   A. 10 cm   B. 15 cm   C. 20 cm   D. 25 cm

vii. 5 joules of work is needed to shift 10 C of charge from one point to another. The potential difference between the points will be: -
   A. 0.5 V   B. 2 V   C. 5 V   D. 10 V

viii. Two small charged spheres are separated by 2 mm. Which of the following would produce the greatest attractive force?
   A. $+1q$ and $+4q$ B. $-1q$ and $-4q$ C. $+2q$ and $+2q$ D. $+2q$ & $-2q$

ix. What happens to the intensity or the brightness of the lamps connected in series as more and more lamps are added?
   A. Increases   B. Decreases   C. Remains same   D. Can't be predicted

x. The combined resistance of two identical resistors, connected in series is 8 Ω. Their combined resistance in a parallel arrangement will be
   A. 2 Ω   B. 4Ω   C. 8Ω   D. 12 Ω

xi. AND gate can be formed by using two
   A. NOT gates   B. OR gates   C. NOR gates   D. NAND gates

xii. The turn ratios of a transformer is10. It means: -
   A. $I_S = 10 \, I_P$ B. $N_S = N_P/10$ C. $N_S = 10 \, N_P$ D. $V_S = V_P /10$

xiii. A power station generates 500 MW of electrical power which is fed to a transmission line. What current would flow in the transmission line, if the input voltage is 250 kV?
   A. 2×10^3 A   B. 3×10^3 A   C. 4×10^2 A   D. 5×10^2 A