ANEES HUSSAIN 100% EXCELLENCE IN EDUCATION

X PREPARATION PAPER 2024–2025

ENGLISH

Section "A"

Q1. Multiple Choice Questions (M.C.Q.s) **(20 Marks)**

*Prepare from Prose and Poem.
*Practice from Midterm paper and past papers. (Final Term paper)

Section "B"

(Short Answer-Questions) **(40 Marks)**

Q2. Answer any 5 of the following questions in two to three sentences each. **10 Marks**

POEM

i) What is the theme of poem "The Voice of God"?
ii) Why was the poet asked to go down again in the poem "The voice of God"?
iii) Why did author climb the steeple?
iv) How did the spider finally reach its cobweb?
v) Why should we speak gently to others?
vi) Why did the King decide to try again?
vii) What lesson did the king learn from the spider?
viii) Why did the King Bruce think that the spider would not be able to reach its home?

PROSE

i) What was the dispute between rich man and the beggar?
ii) How did the caliph decide the case?
iii) What was Caliph Haroon-ur-Rashid known and respected for.
iv) What was going on at Akhtar's school? In what way did he participate?
v) Why was Uncle Inayat like the children?
vi) Why is china having a rapid progress?
vii) What two important safety measures can save people's live?
viii) Why was Akhtar Cross?
ix) Which chores did our last Prophet (S.A.M.) are to do?
x) How can employers hunt the right candidates for their job positions?
xi) How can social media be handy for the students now- a-days?
xii) How is social media affecting the relationships of people?
xiii) What was Mr. Karim's second strange experience? /What happened to Mr. Karim on the seventh night?
xiv) How can a business be initiated on a virtual platform?
xv) How has social media revolutionized the concept of communication?

Q3. Do as directed (as instructed) **20 Marks**

Grammar:

1. Prepositions (1 Mark)
2. Articles (1 Mark)
3. Formation of Sentences (5 Marks)
4. a) Nature of sentences b) Types of Sentences
5. c) Capital Letters and Punctuations
6. Transformation of Tenses (3 Marks)
7. Voice (Active & Passive) (3 Marks)
8. Narration (Direct & Indirect Speech) (3 Marks)
9. Uses of Verbs (2 Marks)
10. Suffix &Prefix (1 Mark)
11. Question tags (1 Mark)

Q4. **Kinds of Part of speech** **(5 Marks)**

Q5. **Translate the following Paragraph in to Urdu or Sindhi.** **(5 Marks)**

Section "C"

(Descriptive Answer-Questions)

(40 Marks)

Q6. **Cloze passage.** **(5 Marks)**

*Prepare from Prose.

Q7. **Write an essay of 120 – 150 words on any one of the following:** **(10 Marks)**

i) The Profession I like most
ii) Personality of your choice/Visionaries Leader
iii) Importance of Muslim Unity/Unity is Strength/Need of National Unity
iv) An Interesting Cricket Match
v) Traffic Hazards in Karachi/A Terrible Accident
vi) Impact /Role of Social Media on Youth/Society
vii) Energy Crisis in Pakistan

Q8. **Informal Letters** **(10 Marks)**

i) Write a letter to your cousin, inviting him/her to spend the summer vacation with you/ her to attend marriage ceremony of your brother.

Formal Letters

i) Write a letter to the editor of a newspaper, concerning about the harmful effects of plastic bags to existing environment/concerning over frequent power failures in your area/ concerning over short supply of drinking water in your area/ concerning about law and order situation in the city/ concerning over unsatisfactory sanitary condition in your locality.

ii) Write a letter to the editor of a newspaper, complaining about the shortage of playground in your area.

Q9. **Unseen Reading Passage.** **(15 Marks)**

Read the following passage and answer the questions given below.

PAKISTAN STUDIES

MULTIPLE CHOICE QUESTIONS MCQs

- Learn 10 year MCQs and study all the chapters

"SHORT QUESTION ANSWER"

1- Characteristics of the culture of Pakistan.
2- Five point from the fourteen point of Quaid-e-Azam.
3- Five minerals found in Pakistan.
4- Objectives of establishment of all India Muslim League.
5- Define imports exports trade.
6- Muslim festivals which are celebrated every year in Pakistan.
7- Two Nation theory
8- Five Islamic provision of constitution of 1973.
9- Defence industries of Pakistan.
10- Nuclear energy in Pakistan.
11- Role of Pakistan to bring for prosperity in Pakistan.
12- Write any four uses of E-commerce.
13- Five advantages of forests.
14- Main five objectives of Aligarh movement.
15- Five salient features of objective resolution.
16- Any five uses of natural gas.
17- Five merits of democratic government.
18- Write five sentences on the importance of census.
19- Write five sentences on the importance of Pakistan Resolution.
20- Write down five sentences on moderation in life.
21- Describe importance of education in the development of country.
22- Five suggestions to reduce the population pressure on natural resources.
23- Write five names of the neighboring countries of Pakistan.
24- Describe the importance of urdu as a National language.

(LONG QUESTION ANSWERE)

1- Urdu as a national language.
2- Mean by welfare state Islamic concept of welfare state.
3- Geographical location of Pakistan in South Asia.
4- Main agricultural problems of Pakistan.
5- What role we should play to make Pakistan a prosperous country?
6- Describe the importance of education in the progress of a country and major educational problems of Pakistan.

(NOTES)

1- Pakistan resolution
2- Culture of Pakistan
3- The principles of democracy in Islam.
4- The Indus Basin Treaty.
5- Faraizi Movement.
6- Information Technology.
7- Role of Quaid-e-Azam as a Governer General.
8- Problems faced by educational sector in Pakistan.
9- National goals of Pakistan.

کثیر الانتخابی سوالات

- دس سالہ پرچہ جات اور تمام اسباق سے کریں

مختصر سوالات کے جوابات

۱. ثقافت کی تعریف پاکستان کی ثقافت کی خصوصیات
۲. قائداعظم کے ۱۴ نکات میں سے پانچ نکات
۳. پاکستان میں پائی جانے والی پانچ معدنیات
۴. آل انڈیا مسلم لیگ کے مقاصد
۵. درآمدات و برآمدات کی تجارت کی وضاحت کریں۔
۶. پاکستان میں ہر سال بنائے جانے والے مسلمانوں کے تہوار
۷. دو قومی نظریہ
۸. ۱۹۷۳ کے آئین کے پانچ اسلامی کے دفعات
۹. پانچ اہم دفاعی صنعتیں
۱۰. پاکستان میں ایٹمی توانائی پر حملے
۱۱. پاکستان میں خوشحالی لانے کے لئے پاکستانیوں کا کردار
۱۲. ای کامرس کے کوئی بھی چار استعمال لکھیں۔
۱۳. جنگلات کے پانچ فائدے
۱۴. علی گڑھ تحریک کے بنیادی پانچ مقاصد۔
۱۵. قراردادِ مقاصد کی پانچ نمایاں خصوصیات۔
۱۶. قدرتی گیس کے کوئی بھی پانچ استعمال۔
۱۷. جمہوری حکومت کی پانچ خوبیاں۔
۱۸. مردم شماری کی اہمیت پر پانچ جملے۔
۱۹. قراردادِ پاکستان پر پانچ جملے۔
۲۰. زندگی میں اعتدال پسندی پر پانچ جملے۔
۲۱. کسی ملک کی ترقی میں تعلیم کی اہمیت پانچ جملوں میں تحریر کریں۔
۲۲. قدرتی وسائل پر آبادی کا دباؤ کم کرنے کے لئے پانچ تجاویز پیش کیجیے۔
۲۳. پاکستان کا پانچ ہمسایہ ممالک کے نام۔
۲۴. بحیثیت قومی زبان اردو کی اہمیت۔

تفصیلی سوالات کے جوابات

۱. بحیثیت قومی زبان اردو کی اہمیت۔
۲. فلاحی مملکت کا اسلامی تصور۔
۳. جنوبی ایشیا میں پاکستان کا جغرافیائی محل وقوع۔
۴. پاکستان کے اہم زرعی مسائل۔
۵. پاکستان کو ایک خوشحال ملک بنانے میں ہمیں کیا کردار ادا کرنا چاہیے۔
۶. کسی ملک کی ترقی میں تعلیم کی اہمیت بیان کیجیے نیز پاکستان کے اہم تعلیمی مسائل تحریر کیجیے۔

نوٹ

۱. قرارداد پاکستان۔
۲. پاکستان کی ثقافت۔
۳. اسلام میں جمہوریت کے اصول۔
۴. سندھ طاس معاہدہ۔
۵. فرائضی تحریک۔
۶. انفارمیشن ٹیکنالوجی۔
۷. بحیثیت گورنر جنرل قائدِ اعظم کا کردار۔
۸. پاکستان میں شعبہ تعلیم کو درپیش مسائل۔
۹. پاکستان کے قومی مقاصد۔


پښتو

حصو ”ب“

١. پاڻ سڳورن ﷺ جن اسلامي برادري بابت کهڙوارشاد فرمايو؟
٢. نبي کريم ﷺ جن زالن،ٻارن،يتيمن،مسڪينن واسطي کهڙيون نصيحتون ڪرڻ فرمايون؟
٣. حضرت سلمان فارسي رضہ حق ۽سچ جي ڳولا لاءِ کهڙيون کوششون ڪيون؟
٤. اسلام قبول ڪرڻ کانپوءحضرت سلمان فارسي رضہ کهڙيون خدمتون سرانجام ڏنيون؟
٥. حضرت امام جعفر جا کهڙا مشهور شاگرد ٿي گذريا آهن ۽ حضرت امام جعفر صادق رح کهڙن استادن وٽ تعليم حاصل ڪئي؟
٦. سرڪاري مُلازمن کي قائدِاعظم کهڙي هدايت ڪئي آهي؟
٧. قائدِاعظم شاگردن کي نصيحت ڪندي کهڙين ڳالهين ڏانهن سندن ڌيان ڇڪايوآهي؟
٨. اتحاد نہ هئڻ ڪري قوم کي کهڙونقصان ٿيندو؟
٩. تنظيم چو ضروري آهي ۽ يقين محڪم ڇاکي ٿوسڏجي؟
١٠. مولانا دين محمد جا کهڙا علمي يادگار موجود آهن ۽ مولاناوفائيءَکي کهڙن بزرگن جي ڪچهريءَمان فيض حاصل ٿيو؟
١١. مائي خيريءَ کهڙاکهڙاخير جاڪم ڪيا؟
١٢. وادي مائيءَکي کهڙوشرط ٻڌايو؟
١٣. بين الاقوامي عدالت کهڙا کهڙاڪم ڪندي آهي؟
١٤. کهڙاملڪ بين الاقوامي عدالت کان پنهنجا تڪرارنبيرائي سگهن ٿا؟
١٥. چوڪري اٺ جي هڏن مان ڇا ناهيا؟
١٦. اجرڪ سنڌ جي کهڙن شهرن ۾ٺهي ٿي؟
١٧. ڊزائين ۽رنگن جي لحاظ کان اجرڪ جا گهٽا قسم آهن؟
١٨. ميرن جي اخلاق بابت ڊاڪٽرجيمس برنس ڇا لکيوآهي؟
١٩. ميرن جي دربارجوستاءُ کهڙي قسم جوهو؟
٢٠. جنڪ فساد جو باعث کهڙيون ڳالهيون آهن ؟
٢١. ڪلهوڙن جي دور کي سنڌي ادب جو سونهري دور چوٿو چيو وڃي؟

اهم جملا

☆نامور ☆معمار ☆ تڪرار ☆ ناماچار ☆ وندر ☆ داستان ☆ پُڇاڙو
☆ نسبي ☆ فيض ☆ جدوجهد ☆ڪيبائڻ ☆ ويڇا ☆ ڏاڪو ☆ نقشِ قدم
☆ رائج ☆ رڻ ☆ جيئرو ☆ نبيرو ☆ سوڪڙي ☆ اهجاڻ ☆ سانت
☆چهڇڙو ☆ ساهت ☆ ڏيهي ☆ ڏيساور ☆ ارڏايون ☆ سونهارا ☆ هڪاءُ

اهم گرامر:

☆فعل ☆ صفت ☆ حرف جر ☆ حرف جملو

اهر اصطلاحات :

☆ نالو ڳائجڻ ☆ پُچاڻو ٽيڻ ☆ هڙان ڏيڻ ☆ پاڻ ملهائڻ ☆ گوءِ ڪٽي وڃڻ
☆سرصدقو ڪرڻ ☆ نينهن نپائڻ ☆ اکين ۾ هجڻ ☆ نقش قدم تي هلڻ

حصو ”ج“

اهر مضمون :

☆ پسنديده شخصيت /قائد اعظم رح ☆ وطن جي حب ☆ بهار جي موسم
☆ پسنديده شاعر/شاه عبداللطيف ڀٽائي رح ☆ علم جي اهميت

اهر درخواستون :

☆ پڪنڪ ملهائڻ لاءِ ☆ جشن لطيف ملهائڻ لاءِ ☆ في معافي لاءِ
☆ علائقي جي صفائي لاءِ ☆ موڪل لاءِ

اهر خط :

☆ دوست کي ڪراچي گهمڻ لاءِ ☆ دوست کي مبارڪ باد لاءِ
☆ والد صاحب کي تعليمي ڪيفيت ۽ پئسا گهرائڻ لاءِ خط

اهر نظر:

☆ نـــيڪي جا بند ☆دعا ☆ سچل سرمست جا بيت

اهر خلاصا / مرڪزي خيال:

☆ مائي خيري ☆ هنر دولت آهي ☆ اجرڪ ☆ ميرن جي دربار
☆ امام جعفر صادق رح ☆ حضرت سلمان فارسي رضه

اهر مرڪزي خيال :

☆دعا ☆ نـــيڪي ☆ سچل سرمست جا بيتَ ☆ وائي

MATHEMATICS

SECTION "B"

UNIT NO: 17 (SETS AND FUNCTION)

TOPIC: SYMMETRIC DIFFERENCE OF TWO SETS

Q. If $A = \{1, 2, 3, 4, 5\}$ $B = \{1, 3, 5, 7\}$ The prove that:

i- $A \Delta B = (A \cup B) - (A \cap B)$ ii- $A \Delta B = (A - B) \cup (B - A)$

Topic: De Morgan's Laws.

Q. If $U = \{x | x \in N \wedge x < 21\}$

$A = \{1, 3, 5, 7, 9, 11, 13, 15, 17, 19\}$ & $B = \{2, 4, 6, 8, 10, 12, 14, 16, 18, 20\}$

Then prove that

i- $(A \cup B)' = A' \cap B'$

ii- $(A \cap B)' = A' \cup B'$

Topic: Sets Equation.

i- Find x and y if $(x + 5, 8)$ and $(9, y - 6)$ are equal.

ii- Find the value of x and y $(x - 5, 10) = (11, y - 7)$

iii- Find the value of x and y $(5x + 8, 5y - 4) = (3x + 10, 2y + 2)$

iv- $(2x - 3y, 5x + y) = (3, 16)$

Topic: Power Set.

Q. If $A = \{1, 2, 3, 4\}$ then find P (A)

Topic: Cartesian Products

Q. If $A = \{1, 2, 4\}$ and $Q = \{5, 10\}$ the prove that $A \times B \neq B \times A$

UNIT NO: 18 (VARIATIONS)

Ex. 18.4

(All questions)

Ex. 18.6

Example No: 1, 2 Page No: 51

Example No: 3 Page No: 52

Q1. (I, II, III, IV, V) Q2. (I, II, III)

UNIT NO: 19 (MATRICES AND DETERMINANTS)

Ex. 19.1

Example No: 1(imp) Page No: 65 Example No: 2(imp) Page No: 66

13 (i), 14, 15

Ex. 19.2

Example No: 2	Page No: 73	Example No: 1	Page No: 74
Example No: 1	Page No: 76	Example No: 1	Page No: 78
Q5, 6	Q7. (3 to all)(Most Important)		Q8. (i, ii)

UNIT NO: 20 (THEORY OF QUADRATIC EQUATIONS)

Ex. 20.1

Q3. (i). Q4 Q5,Q6,Q7

Ex. 20.2

Example No: 2	Page No: 91	Example No: 3	Page No: 92
Example No: 4	Page No: 93		
Q1. (I, II, III)		Q2. (I, II, III, IV)	Q3. (I, II, III, IV, V)

Ex. 20.3

All questions

Ex. 20.4

Q2. (I, II, III) Q3

Ex. 20.5

Example No: 1 Page No: 102
Q2. (I, II, III, IV, V) Q3 and Q4

UNIT NO: 21 (PARTIAL FRACTIONS)

Ex. 21.1

Q1, 2, 3, 4, 5, 6, 7,

Ex. 21.2

Q1, 2, 3, 4, 5, 6

Ex. 21.3

Q1, 2, 3

UNIT NO: 22 (BASIC STATISTICS)

TOPIC: Arithmetic Mean (A.M) $\bar{X}$

Q. Find A.M of electricity consumption (kwh) of a shop for EC days.

Electricity Consumption	68-87	88-107	108-127	128-147	148-167	168-187	188-207
No. of days	10	13	15	10	4	6	2

Topic: Median for Grouped Data with and without Class Limits / Boundary

Q. Find the median electricity consumption of a shop for 60 days using the data.

Electricity Consumption	68-87	88-107	108-127	128-147	148-167	168-187	188-207
No. of days	10	13	15	10	4	6	2

Q. Find the median for the following data.

Weight (kgs)	30-32	32-34	34-36	36-38	38-40
No. of Students	10	8	9	6	7

Topic: Modal Or Mode For Grouped Data With And Without Class Boundary

Q. Find modal kwh electricity consumption of a shop for 60 days using the following data.

Electricity Consumption	68-87	88-107	108-127	128-147	148-167	168-187	188-207
No. of days	10	13	15	10	4	6	2

Q. Find the made for the following data.

Marks obtained	30-40	40-50	50-60	60-70	70-80	80-90	90-100
No. of Students	2	8	9	5	4	3	1

Topic: Variance For Ungrouped Data

Q. Find the variance of the following data.

Marks of Students	90	30	85	50	25	60	71

Topic: Variance for Grouped Data

Q. Find variance in mass of 50 blocks of metal as distributed in the following data.

Mass of blocks (Kgs)	71-73	74-76	77-79	80-82	83-85	86-88	88-90
No. of blocks	3	5	9	14	11	6	2

Topic: Standard Deviation for Ungrouped Data

Q. Find the standard deviation of the following data.

Marks of Students	90	30	85	50	25	60	71	80	40

Topic: Standard Deviation for Grouped Data

Q. Find the S.D of the following data.

Mass of blocks (Kgs)	71-73	74-76	77-79	80-82	83-85	86-88	89-91
No. of blocks	3	5	9	14	11	6	2

Topic: Mean Deviation for Ungrouped Data

Q. Find the mean deviation of the following data.

Marks of Students	90	30	85	50	25	60	71	81

Topic: Mean Deviation for Grouped Data

Q. Find the mean of the following data.

Mass of blocks (Kgs)	71-73	74-76	77-79	80-82	83-85	86-88	89-91
No. of blocks	3	5	9	14	11	6	2

Topic: Geometric Mean for Ungrouped Data

Q. Find average amount of cold drink using G.M. in the following data.

Amount of cold drink (lit)	1.48	1.49	1.50	1.51	1.52
No. of bottles	2	7	5	5	1

Topic: Geometric Mean for Grouped Data

Q. Find G.M of the electricity consumption data.

Electricity Consumption	68-87	88-107	108-127	128-147	148-167	168-187	188-207
No. of days	10	13	15	10	4	6	2

Topic: Harmonic Mean for Ungrouped Data

Q. The amount of cold drink (Lit) is given for 20 bottles. Find H.M amounts.

Amount of cold drink (lit)	1.48	1.49	1.50	1.51	1.52
No. of bottles	2	7	5	5	1

Topic: Harmonic Mean (H.M) for Grouped Data

Q. Find harmonic mean mass (kgs) of 50 blocks of metals.

Mass of blocks (Kgs)	71-73	74-76	77-79	80-82	83-85	86-88	89-91
No. of blocks	3	5	9	14	11	6	2

UNIT NO: 30 INTRODUCTION TO TRIGONOMETRY

Ex. 30.3

Q5, Q6 (I – V)

Ex. 30.4

Q1 (I – XIII) Q2 (I – III)

Ex. 30.5

Q1, 2, 3, 4, 5

Theorems. (Short)

A straight , drawn from the centre of a circle to bisect a chord (which is not a diameter)is Perpendicular to the chord.(M.P , 2023) ...OR...

Perpendicular from the centre of circle to a chord bisects it....OR...

If two chords of a circle are congruent then they will be equidistant from the centre.

If the angles subtended by two chords of a circle (or congruent circles) at the centers(corresponding centers) are equal, the chords are equal. Prove it. (P.M) ...OR..... Equal chords of a circle (or of two circles) subtend equal angles at the centre (at the corresponding centers).

Theorems. (Long)

In a right angle triangle, the square of the length of hypotenuse is equal to the sum of the squares of the length of the other two sides. **(M.M.M, Important)**

If the square of the one side of triangle is equal to the sum of the squares of the other two sides, then the triangle is right angled triangle. Prove it. **(Important)**

A line parallel to one side of triangle and intersecting the other two sides, divides them proportionally . Prove it. **(Important)**

If a line segment intersects the two sides of a triangle in the same ratio then it is parallel to the third side. **(M.M.M, Important)**

Q16 The tangent to a circle and the radial segment joining the point of contact and the centre are perpendicular to each other . Prove it. (M.P)...OR...If a line is drawn perpendicular to a radial segment of a circle at its outer end point, it is tangent to the circle at that point. (2023)

Geometry

Example: Draw an inscribed circle of ΔABC in which $m\overline{AB} = 7cm, m\angle B = 60°$ *and* $m\overline{BC}, 6cm,$ **Draw with steps of construction**

Example; Draw an escribe circle opposite to vertex A of ΔABC, where $m\overline{AB} = 5cm, m\angle A = 30°$ *and* $m\angle B = 60°$ **and also write steps of construction.**

PHYSICS

"GENERAL WAVES PROPERTIES # 10"

1. Define: wave, Frequency, Time period, Amplitude, Wavelength, Refraction of wave, Diffraction of wave, wavefront
2. Write difference between Transverse waves and Longitudinal waves, Mechanical waves & Electromagnetic waves.
3. Define, wave speed and derive V = f λ. OR $\lambda = V \times T$
4. Define, Simple harmonic motion and write necessary conditions for a body to execute simple harmonic motion.
5. With the help of diagram, explain SHM in the simple pendulum OR in the Ball & Bowl system

Numerical: W.E # 3, 4. Section (C). Q 1, 2, 3, 4, 7, 8.

"SOUND # 11"

1. Define, Sound, Sound intensity, Noise pollution, Echo, Ultrasound, Infrasonic & Audible frequency.
2. Why Sound requires a material medium for its propagation? Cite an experiment to prove this statement.
3. Define speed of and describe the factors that affect the speed of sound in air.
4. Define Loudness, Pitch and Quality give examples.
5. Write differences between Musical sound and Noise.
6. Define musical sound and describe characteristics of musical sound.
7. Write applications of ultrasound techniques in industry and medicine.

Numerical: W.E # 1, 2, 3. Section (C). Q 1, 2, 3, 4.

"ELECTROMAGNETIC SPECTRUM # 12"

1. Define: Dispersion of light, Rainbow, Spectrum, Sunbeds, Fluorescent & Sterilization.
2. Define Dispersion of light and describe the Dispersion of light of when passing through a glass prism.
3. Define Rainbow and describe dispersion of light through water droplets.
4. Define electromagnetic waves and write characteristics of electromagnetic waves.
5. List the main components of the electromagnetic spectrum in decreasing order of their wavelength.
6. Write uses of electromagnetic waves.
7. Write three uses/applications of X–Rays, Gamma rays and Radio waves.

Numerical: W.E # 1. Section (C). Q 1, 2, 3, 4, 5, 6, 7

"GEOMETRICAL OPTICS # 13"

1. Define, Regular & Irregular reflection, Focal length, Principal Focus, Radius of Curvature, Critical angle Prism, Optical fiber, Power of lens, Magnification.
2. What is the reflection of light? Also state the laws of reflection of light.
3. Define Refraction of light and laws of refraction.
4. With the help of diagram describe total internal reflection and write conditions for total internal reflection.
5. Write difference between i. Concave mirror & Convex mirror ii. Real image & virtual image

6. Write the uses of spherical mirror / concave mirror / convex mirror.
7. With the help of a ray diagram shows the nature of the image formed in a concave mirror. When:
   (i) The object is placed beyond 'C' (ii) The object is placed at 'C'
   (iii) The object placed between F and C (iv) The object at F
   (v) The object is placed at b/w 'F' and 'P'
8. With the help of a ray diagram, give the magnifying powers of the following optical instruments:
   i. Simple microscope or magnifying glass. ii. Compound microscope. iii. Refracting telescope.
9. What is short sightedness & long sightedness? What are the causes of short & long sight? How can these defects be corrected with the help of ray diagram?

Numerical: W.E # 1, 2, 4. Section (C). Q 1, 2, 3, 4, 5.

"ELECTROSTATICS # 14"

1. Define: Electric field, Electric field intensity, unit of charge (Coulomb), Farad, Electrostatic Potential, Capacitor
2. Define electrostatic induction and describe it with the help of experiment with the use of two metal spheres.
3. State Coulomb's law and derive its formula.
4. Define capacitance of a capacitor and what factors does the capacity of a capacitor depends?
5. Write name of application of electrostatics, explain spray painting.
6. Define Parallel & Series combination of capacitor and with the help of diagram derive formula for total capacitance.

Numerical: W.E # 1, 2. Section (C). Q 1, 2, 3, 4, 5, 6

"CURRENT ELECTRICITY # 15"

1. Define: Conventional current, electronic current, Electromotive Force (e. m. f), Volt, Ampere, Ohm.
2. Write the difference between the following: i. A.C and D.C
3. State Ohm's law and derive its formula also write Ohm's law Limitations.
4. Define Series combination of circuits (resistance) and with the help of diagram derive formula for total resistance. Also write advantages and disadvantages.
5. Define Parallel combination of circuits (resistance) and with the help of diagram derive formula for total resistance. Also write advantages and disadvantages.
6. Define Electric Power & Power dissipation, derive $\boldsymbol{P = \frac{V^2}{R}}$
7. State heat dissipation law (Joule's law) and derive the equation $\boldsymbol{H = I^2 R t}$

Numerical: W.E # 1, 4. Section (C). Q 1, 2, 3, 4, 5, 6, 7

"ELECTROMAGNETISM # 16"

1. Define: Right Hand Rule, Magnetic field induction (B), Magnetic Field, Magnetic force.
2. Explain Magnetic effect of a steady current.
3. Derive an expression for force on a moving charge in a magnetic field.
4. Describe force on current carrying conductor in a magnetic field.
5. Define A.C generator, write working principle & working of AC generator.
6. Define Transformer and its types also write daily life applications of transformers

Numerical: W.E # 1 Section (C). Q 1, 3.

"INTRODUCTORY ELECTRONICS # 17"

1. Write differences between analogue and digital electronics.
2. Describe deflection of electron by electric field and write effect of electric field on an electron beam.
3. Describe deflection of electron by magnetic field and write effect of magnetic field on an electron beam.
4. Define Analogue & Digital electronics and describe basic operations of digital electronics.
5. Explain Logic gates and write use of logic gates.

"INFORMATION AND COMMUNICATION TECHNOLOGY # 18"

1. Describe the components of computer-based information system. (CBIS)
2. Define flow of information and write Important parts of communication system.
3. Describe transmission in light signals through optical fibers.
4. Describe word processing, data management and control.
5. Differences between Hardware and Software.

"ATOMIC STRUCTURE # 19"

1. Describe the structure of an atom in terms of a nucleus and electrons OR Main feature of Rutherford's atomic model.
2. Write Geiger and Marsden (α - scattering experiment) and its results in detail.
3. Define Isotopes & write properties of an isotopes.

"NUCLEAR STRUCTURE # 20"

1. Define, Nuclear Physics, Radioactivity, Ionization, Penetrating power, Nuclear reactor, Background radiation, Spontaneous decay & Random decay.
2. Describe Nature of radioactive emission with help of diagram.
3. Explain Relative ionizing effects of radioactive emission and Relative penetrating abilities of radioactive emission.
4. Define nuclear fusion and fission. Describe nuclear fission and chain reaction and draw a diagram of chain reaction.
5. Write the difference between fission & fusion reaction.

WISH YOU GOOD LUCK!!!

CHEMISTRY

According To The New Book Of STBB
CHEMISTRY SSC-II | SESSION 2024-25

CHAPTER 1
CHEMICAL EQUILIBRIUM

SHORT ANSWER QUESTIONS

Q. 1: Define the following terms:

- Chemical equilibrium
- Equilibrium constant
- Active mass

Q. 2: Write down any three macroscopic properties of chemical equilibrium

Q. 3: Write down any three characteristics of equilibrium constant.

Q. 4: How can the direction of a reaction be predicted if Kc is known to you?

Q. 5: Write equilibrium constant expressions and units of Kc for the following reactions:

- $2SO_2 + O_2 \rightleftharpoons 2SO_3$
- $N_2 + 3H_2 \rightleftharpoons 2NH_3$
- $H_2 + I_2 \rightleftharpoons 2HI$

Q. 6: Predict, which system at equilibrium, will contain maximum amount of reactant or maximum amount of product product:

- $2CO_2 \rightleftharpoons 2CO + O_2$ $\quad Kc = 3.1 \times 10^{-18}\ mol.dm^{-3}$
- $2O_3 \rightleftharpoons 3O_2$ $\quad Kc = 5.9 \times 10^{55}\ mol.dm^{-3}$

Q. 7: Write three points of differences between reversible and irreversible reactions.

Q. 8: Numerical problems of Kc and Qc. [From Book]

DETAILED ANSWER QUESTIONS

Q. 1: State the law of mass action. Derive the expression for the equilibrium constant of a reaction:

$$aA + bB \rightleftharpoons cC + dD$$

CHAPTER 2
ACID, BASE AND SALT

SHORT ANSWER QUESTIONS

Q. 1: Define the following terms:

- pH
- pOH
- Neutralization

Q. 2: Define conjugate acid-base pairs. Also define conjugate acid and conjugate base. Identify acid, base, conjugate acid and conjugate base in the following reactions:

- $HCl + H_2O \rightleftharpoons H_3O^+ + Cl^-$
- $HCl + NH_3 \rightleftharpoons NH_4^+ + Cl^-$
- $CH_3COOH + H_2O \rightleftharpoons H_3O^+ + CH_3COO^-$

Q. 3: Explain Lewis theory of acid-base with the examples of NH_3 and $AlCl_3$ or BF_3

Q. 4: Numerical problems of pH and pOH.

Q. 5: Write down any one use of the following salts:

- Calcium sulphate di hydrated
- Copper sulphate
- Iron sulphate hepta hydrated
- Sodium hydrogen carbonate
- Barium sulphate
- Potassium per manganate

DETAILED ANSWER QUESTIONS

Q. 1: Explain Bronsted-Lowry theory of acids and bases with suitable examples? Give its limitations.

Q. 2: What are buffers? What are acidic and basic buffers? How are they prepared?

Q. 3: What is salt? Give its preparation with balanced chemical equations. Also explain its types with examples.

Q. 4: Describe Arrhenius acid-base theory with suitable examples. Also write down its limitations.

Q. 5: Prove pH + pOH = 14 OR Explain how is water ionization related with pH of a solution.

CHAPTER 3
ORGANIC CHEMISTRY

SHORT ANSWER QUESTIONS

Q. 1: Define the following:

- Organic chemistry
- Functional group
- Isomerism
- Catenation
- Homologous series
- Alkyl radicals

Q. 2: Define functional group. Identify the functional groups in the following compounds:

- $CH_3—CHO$
- $CH_3—COOH$
- $CH_3—CH_2—OH$
- $CH_2 = CH_2$
- $CH_3—CO—CH_3$

Q. 3: Write the names and structural formulae (open and condensed both) of five carbon compounds in alkane, alkene and alkyne.

Q. 4: Write down three characteristics of organic compounds.

Q. 5: Write down three uses of organic compounds.

Q. 6: Give any three reasons for why organic compounds have such high magnitude and diversity.

Q. 7: Write down the IUPAC names of the following: [From Book]

DETAILED ANSWER QUESTIONS

Q. 1: What are hydrocarbons? Differentiate between saturated and unsaturated hydrocarbons.

Q. 2: Give a brief account of the natural sources of organic compounds.

Q. 3: Classify organic compounds. Also write down suitable examples for each.

Q. 4: Outline the structural formulae for the following organic compounds:

- Acetylene
- ter-butyl alcohol
- Formic acid
- sec-butyl chloride
- Acetic acid
- Formaldehyde
- iso-propyl alcohol
- Ethyl acetate
- Acetone

CHAPTER 4
BIOCHEMISTRY

SHORT ANSWER QUESTIONS

Q. 1: Define the following:

- Lipids
- Fatty acid
- Bloor's reagent
- Peptide linkage
- Ketose
- Glycosidic linkage
- Saccharide
- Aldose
- Nucleotide

Q. 2: What are amino acids? What is the general structure of amino acid? How do they polymerize to form proteins?

Q. 3: What are proteins? Write the importance of proteins.

Q. 4: Differentiate between:

- Fat and oil
- Fat soluble vitamins and water soluble vitamins

DETAILED ANSWER QUESTIONS

Q. 1: Define nucleic acid. Write down five points to differentiate between DNA and RNA.

Q. 2: What are carbohydrates? Give their classification on the basis of hydrolysis. Also write down its two uses.

Q. 3: What are vitamins? Give their classification on the basis of solubility. Name the diseases caused by the deficiency of vitamins B, C and D.

CHAPTER 5
ENVIRONMENTAL CHEMISTRY-I (ATMOSPHERE)

SHORT ANSWER QUESTIONS

Q. 1 Define pollutant. Enlist the names of seven types of pollutants.

Q. 2 Define atmosphere. Discuss its composition.

DETAILED ANSWER QUESTIONS

Q. 1 How does greenhouse effect increase the temperature of the Earth? Explain its effects on environment.

Q. 2 Define acid rain. How is it formed? Also write down its three effects on environment.

Q. 3 What are primary and secondary air pollutants? Give the sources, environmental and health risks of the following:

- CO_x
- SO_x
- NO_x
- Lead
- Ozone

CHAPTER 6
ENVIRONMENTAL CHEMISTRY-II (WATER)

SHORT ANSWER QUESTIONS

Q. 1 Differentiate between soft water and hard water.

Q. 2 Write down any three disadvantages of using hard water.

DETAILED ANSWER QUESTIONS

Q. 1 What do you mean by 'water borne diseases'? Describe any five of them.

Q. 2 What is hard water? Give the cause of hardness. Explain how temporary and permanent hardness can be removed.

Q. 3 What is water pollutant? Write down the names of three water pollutants and explain any two of them.

CHAPTER 7
ANALYTICAL CHEMISTRY

SHORT ANSWER QUESTIONS

Q. 1 Define the following:

- Analytical chemistry
- Anylate
- Matrix
- Sample
- Potentiometry
- Stationary phase
- Mobile phase
- Retention time
- Chromatography

Q. 2 Differentiate between:

- Qualitative analysis and quantitative analysis
- Classical method and advanced instrumental method

Q. 3 Define qualitative analysis. What are organic and inorganic qualitative analyses? Explain with examples.

Q. 4 Define quantitative analysis. What are the physical and chemical methods of quantitative analysis?

Q. 5 List down the names of physical methods of quantitative analysis

Q. 6 Define conductometry. Enlist its three uses.

DETAILED ANSWER QUESTIONS

Q. 1 Define chromatography. Describe High Performance Liquid Chromatography OR Gas Chromatography with diagram. Also write down its two uses.

Q. 2 Define spectroscopy. How is it used in the chemical analysis of a substance? Also discuss its types.

Q. 3 Explain the construction and working of the electrochemical cell used in the electrochemical method of analysis.

CHAPTER 8
INDUSTRIAL CHEMISTRY

SHORT ANSWER QUESTIONS

Q. 1 Define the following:

- Saponification
- Carbonation

Q. 2 Describe the raw materials used in the preparation of soap.

Q. 3 Explain the stepwise method of preparation of soft drinks in industries.

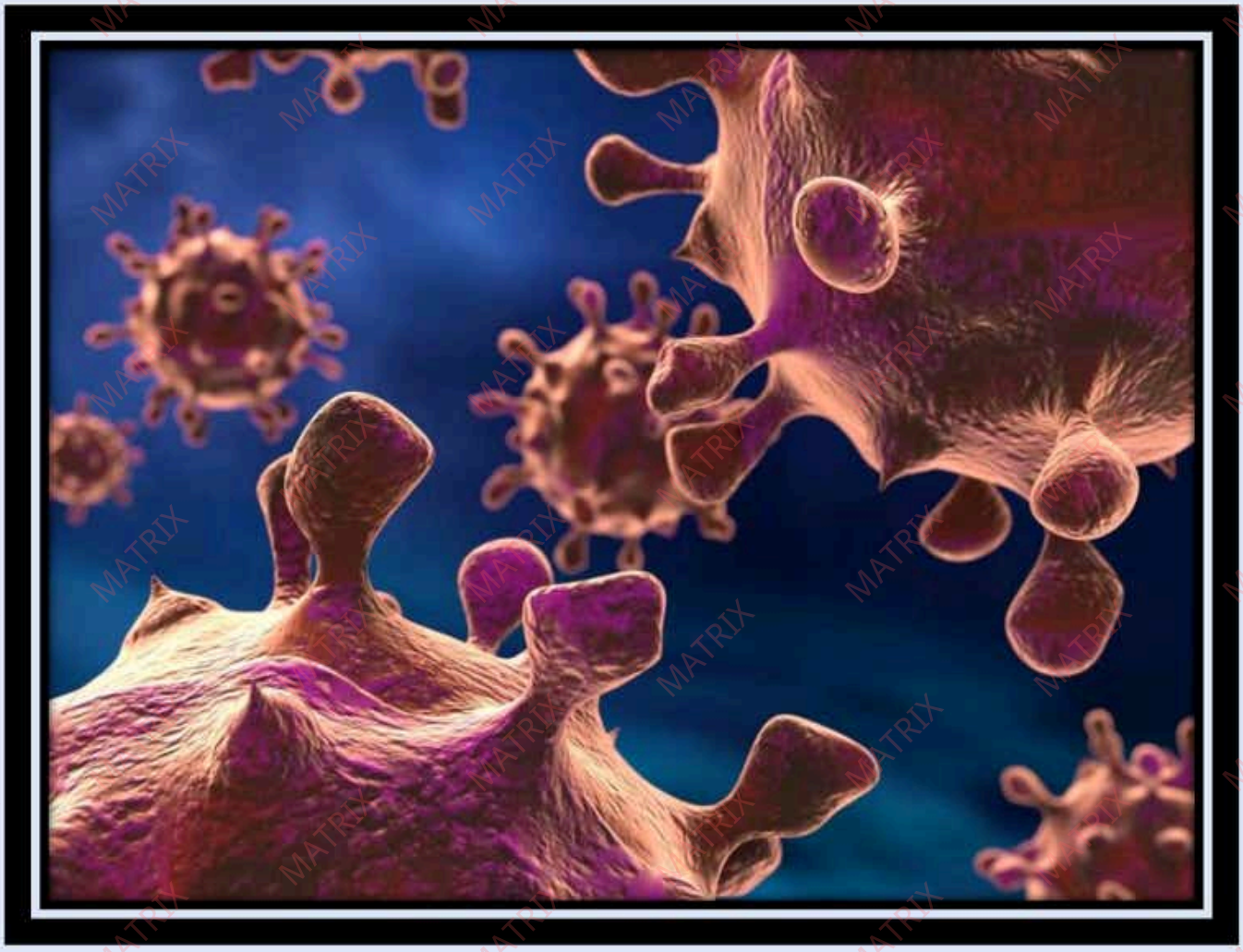
Q. 4 Write down any three points to describe the importance of pharmaceutical industries.

DETAILED ANSWER QUESTIONS

Q. 1 Define saponification. Discuss the raw materials required for the preparation of soap? Also draw the flow sheet diagram of saponification.

Q. 2 What is petroleum? How is it fractionally distillated? What fractions are obtained? Name some of them.

BIOLOGY



CHAPTER # 01
Gaseous Exchange

1. Differences B/W Photosynthesis and Respiration:
2. Role of opening and closing of stomata:
3. Mechanism of Human respiratory system:
4. Structure of Human respiratory system: (For Long Question)
5. Respiratory Disorders: (For Long Question And Short Note)

CHAPTER # 02
Homeostasis

1. Adaptation of plant in maintaining different internal condition:
2. Removal of extra water in plants: (For Short Note)
3. Osmotic adjustment in plants:
4. Osmoregulation in terrestrial organism: (For Short Note)
5. Short note on excretion:
6. Structure and mechanism of human skin:
7. Urinary System in Man:
8. Structure of kidney: (For Diagram)
9. Structure of nephron: (For Diagram)
10. Urine formation: (For Long Question)
11. Disorders of kidneys: (For Short Note)

CHAPTER # 03
Co-Ordination And Control

1. Types of co-ordination:
2. Co-ordination in lower living organisms:
3. Human Nervous System: (For Long Question)
4. Structure of Neuron:
5. Structure of Human eye:
6. Endocrine Glands: (All)
7. Nervous Disorders: (For Short Note)

CHAPTER # 04
Support And Movement

1. Difference Between:
   * Movement and Locomotion
2. * Internal and External Stimuli
3. Describe different type of movement on the basis of response
4. Explain skeleton and also write its types:
5. What are joints? Also write its types in detail:
6. Explain the types of muscles along with diagram:

CHAPTER # 05

Reproduction

1. Difference between:
   *Sexual and Asexual reproduction
   * Vegetative and Artificial propagation
   *Epigeal and hypogeal germination
   * Spermatogenesis and Oogenesis
2. Methods of Asexual reproduction:
3. Secual reproduction in flowering plants:
4. Pollination and its types:
5. Describe seed and its structure:
6. Describe the process of germination of seed:
7. Describe the process of asexual reproduction in animals in detail: (For long Question)
8. Describe the process of Sexual reproduction in animals in detail: (For long Question)
9. What is fertilization: Also Wirte its types: (For long Question)

CHAPTER # 07

Man And Its Environment

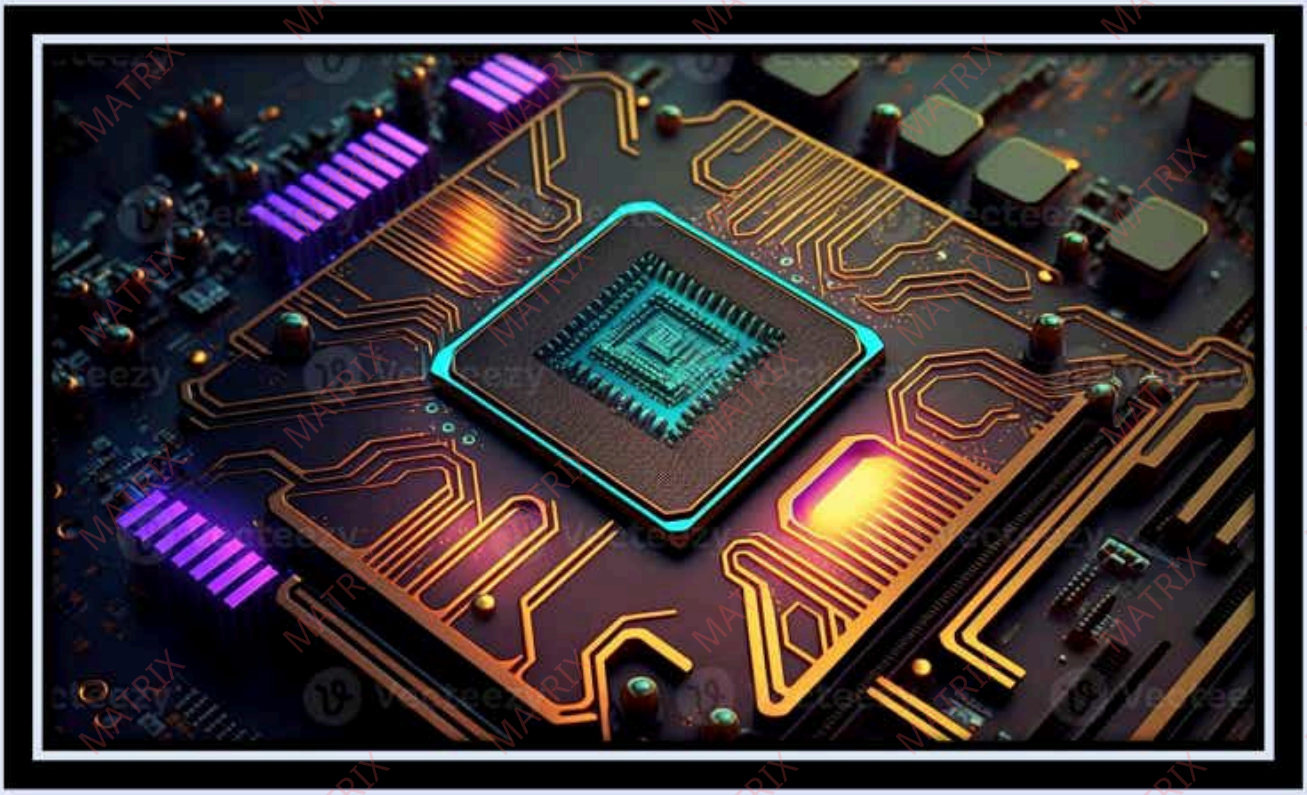
1. Write components of Ecosystem: (Biotic and Abiotic Components)
2. Define Food Chain and Food Web:
3. What is conservation of nature: Explain in detail:

CHAPTER # 08

Biotechnology

1. Explain the term fermentation :Also write its importance:
2. Define Genetic Engineering : Also write its uses:

COMPUTER STUDIES



SECTION 'B' [SHORT QUESTIONS]

Q.1 Why we make block of statements using braces?

Q2: Write down the purpose and syntax

do – while, break, cout, switch.

Q3: Define Logical Operators with example.

Q4: Define Algorithm.

Q5: Simplify the following Boolean expression.

Z = AB + A(B+C) + B(B+C)

Q6: Remove the error(s) from the following statements: (if any)

i) cout << I read in class X ii) if {c < 10}; iii) cin<< abc ;

Q7: Describe Script Area in Scratch Editor.

Q8: Write advantages and disadvantages of flowchart.

Q9: Write down the output of the following program.

```
#include using namespace std;
int main()
{       int b;
for (b=0; b<=10; b++)
{ cout << "\n" << b;
}
return 0;
}
```

Q10: What is the use of Scratch Editor?

Q.11 Difference between tree and graph data structure.

Q.12 What is the need of index in an array?

Q.13 Difference between stack and queue.

Q.14 Difference between source code and object code.

Q.15 Write some rules of name variable.

Q.16 List any three advantages of IDE.

Q.17 Use '\a' and '\r' both escape sequence in a program.

Q.18 Difference between arithmetic operator and relational operator.

Q.19 Difference between increment and decrement operator.

Q.20 What is the basic difference between '\n' and '\t'?

Q.21 How many types of comments are used in C++?

Q.22 What is the main difference between while loop and do..while loop?

Q.23 Write the function of for loop.

Q.24 Why we use header files?

Q.25 Explain AND logic gate and its operation.

Q.26 Explain the purpose of truth table.

Q.27 Difference between NAND and NOR gates.

Q.28 Draw the following diagrams:

* Tree with its nodes
* Graph with its nodes
* Enqueue and dequeue process
* push and pop process in stack

Q.29 Difference between push and pop.

Q.30 Define language translator.

Q.31 Difference between machine language and Assembly language.

Q.32 Define IDE.

Q.33 Why do we need to draw flowchart and Algorithm? Explain.

Q.34 Define linear data structure.

Q.35 Define data types used in C++.

SECTION 'C' [DESCRIPTIVE QUESTIONS]

Q36: Write a program in C++ using Arithmetic Assignment Operators.

Q37: Draw the logic circuit of the given Boolean expression.

1) $Y = \bar{A}BC(A + D)$ 2) $X = AB(C + D)$

Q38: Define jump statement with its different forms in detail.

Q39: Describe Linear Data Structure and its types.

Q40: Write the use of the following codes of Scratch Editor:

(i) forever (ii) wait (iii) play (iv) sound (v) goto x, y (vi) say

NOTE:

(1) All programming practice work are important.

(2) All Test questions were conducted in throughout session are important.

(3) Reading book must go through for comprehensive and Annual Examination.