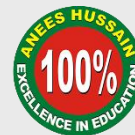


PREPARATION PAPER

FINAL TERM EXAMINATION 25-26





SECTION A (MULTIPLE CHOICE QUESTIONS)

- MCQs from the Poems and Prose

MOST IMPORTANT QUESTIONS FOR THE SESSION OF 2025-26

Section B

SUB SECTION II (PROSE)

UNIT ONE THE DEVOTED FRIEND BY: OSCARE WILDE

1. How does the friendship between Hans and Miller seem odd from the beginning?
2. Why did Hans sell his wheelbarrow?
3. In what way does the Miller exploit Hans with the promise of giving him his wheelbarrow?
4. What final act of the Miller's selfishness leads to Hans' death?

UNIT TWO: CONTRIBUTION OF WORLD LEADER BY JR MARTIN LUTHER KING

5. How does Martin Luther King describe the current conditions of African Americans, despite the promises made a century earlier?
6. What does Martin Luther King mean when he says, "Now is the time to rise from the dark and desolate valley of segregation to the sunlit path of racial justice"?
7. What message does Martin Luther King convey to his listeners through his speech?

UNIT THREE: CONQUEST OF HAPPINESS BY BERTRAND REUSSEL

8. According to the author, why do scientists often experience deep satisfaction in their work?
9. How does the element of constructiveness bring happiness in the work?
10. What kind of interest in persons causes happiness and what causes unhappiness?
11. Why interest in impersonal things is necessary for the happiness of human beings?

UNIT FOUR: ICARUS AND DAEDALUS BY JOSEPHINE PRESTON PEABODY

12. Compare and contrast Daedalus and Icarus
13. What is the significance of Daedalus dedicating his wings to Apollo after Icarus's fall?
14. What moral lessons can be drawn from the story Provide examples from the text to justify each lesson?

UNIT FIVE: HOW MUCH LAND DOES A MAN NEED BY: LEO TOLSTOY

15. What moral/lesson do you learn from the story of Pahom?
16. What urged Pahom to abandon his well-settled life and desire for more land?
17. Why was the Chief of Bashkirs laughing on Pahom's efforts?
18. What does the ending of the story reveal about Pahom's character?

UNIT SIX: THE DAY THE DAM BROKE BY JAMES THURBER

19. What and where did the panic start?
20. How did the panic end so abruptly and why nobody talked about it for a long time?
21. How long did the panic last? How was the order restored?
22. How does the author describe the business and behavior of people in Columbus the next day of the panic?

UNIT SEVEN: CLIMATE CHANGE ITS CAUSES & EFFECTS)

23. How does climate change affect water availability in different regions?
24. What is climate change and what are its main causes?
25. What connection can you draw between climate change and poverty?

SUB SECTION II (POETRY)

POEM ONE (IF- BY RUDYARD KIPLING)

26. How does Kipling suggest one should deal with both success and failure?
27. Why does the poet consider "Triumph and Disaster" as "impostors"? Justify with some reasons.
28. Why does the poet place emphasis on patience, truthfulness, and self-discipline in achieving personal growth?

POEM TWO (THE AGE OF INFANCY BY: ALLAMA IQBAL)

29. How does Dr. Allama Muhammad Iqbal depict the theme of innocence and simplicity in the poem "Age of Infancy"?
30. How does the poem evoke feelings of nostalgia for infancy?
31. How does the metaphor "My heart was no less than inquisitiveness personified" shape the reader's understanding of the speaker's emotional state? Elaborate.

POEM THREE (THE SEVEN AGES OF MAN BY: WILLIAM SHAKESPEAR)

32. What do the 'entrances' and the 'exits' represent in the poem "Seven Stages of Life"?
33. How does Shakespeare's metaphor of the world as a stage reflect the transient nature of human life?
34. How would you divide the life of a modern human being in seven different ages?

POEM FOUR (YOU START DYING SLOWLY BY PABLO NERUDA)

35. Why does the poet emphasize the importance of change, such as wearing different colors or speaking to people you don't know?
36. What kind of emotions or experiences does the poet value, based on the line "If you avoid to feel passion and their turbulent emotions"?
37. How does Neruda's poem serve as both a warning and an encouragement? Which element is stronger, in your view?

POEM FIVE (LINES FROM ULYSSES BY: TENNYSON)

38. How does Ulysses' reflection on death ("Death closes all") shape his perspective on life and action?
39. How does Ulysses motivate his companion to sail once again and why?
40. What does Ulysses' words "It is not too late to seek a newer world" mean?
41. What does "Happy Isle" symbolize in the poem?

POEM SIX (STOP ALL CLOCKS BY W H AUDEN)

42. Why do you think the speaker wants to stop the clocks and silence everything at the beginning of the poem?
43. How does the poet convey the idea that life has lost all meaning for the speaker after the loss?
44. Why is silence emphasized so strongly in the poem? What role does it play in the theme of mourning?

POEM SEVEN (SUR SASUSI (HUSSAINI) BY: SHAH ABDUL LATIF)

45. What spiritual lesson can be drawn from the poet's portrayal of constant struggle and longing?
46. How is Sasui's physical journey through the desert symbolic of an inner or spiritual journey?

47. What lesson does the poet convey about commitment to one's goal even in the face of suffering?

SUB SECTION III NOVEL

(THE GREAT EXPECTATION)

48. Does Pip feel nervous or excited about accompanying the soldiers on the convict search?
49. How does Estella treat Pip when they first meet, and in what ways does this encounter influence his self-image?
50. What is unusual about Miss Havisham's appearance and lifestyle, and how do these reflect her past??
51. Does Pip tell the truth about his visit to Miss Havisham's house? Does Pip reveal the truth to someone later?
52. What happens when Pip meets the pale young gentleman, and what is unusual about the outcome?
53. Is Pip happy about becoming a blacksmith after visiting Miss Havisham's house?
54. How does Pip's relationship with Joe and Biddy begin to change as he becomes more focused on his new life in London?
55. Does Pip feel proud or ashamed when he learns that Magwitch is his benefactor?
56. How does Pip's character evolve from childhood to adulthood, and what key experiences shape his transformation?
57. What does Joe Gargery represent in the story, and how does his relationship with Pip highlight themes of integrity and unconditional love?

SUB SECTION IV(Grammar)

- Spot the errors in the use of preposition, adjective, Semi Colon & Colon, Anaphoric & Cataphoric etc)
- Do as directed (Conditional sentences, positioning adverbs, Modal verbs)
- Active to Passive *Direct to indirect Narrations

Section C

- Passages & Precise

Email writing

- You have been invited through an official email to appear in an interview for a place to study in a college. Unfortunately, you already have another important appointment somewhere at the same time. Write an email to the administrator of the college and explain your position.
- You have been offered a job by a company. But you do not want to join them. Write a formal email to the HR Supervisor to explain the reason why you decline the offer. Your e-mail should include:
Your gratitude for the offer
Reasons behind the decline
- Write a formal email to your principal and ask for permission to organize a Science and Art Exhibition event in the college. Your email should include:
The day and the timing for the event
The activities planned for the event
The benefits of the event

CV writing

- A university is inviting applications for the post of Data Analyst at Quality Enhancement Cell. Young, self-motivated, and co-operative candidates having 16-year education in Statistics and minimum 2-year experience as Data Analyst in a public or private sector.
- An International NGO working on the rehabilitation of the flood affected people is looking for a young, talented, and co-operative candidate for the post of Translator (from native to English language).
- The candidate should have graduation in English in first class, proficient in oral and written communication; expert in IT skills, should have effective interpersonal skills and should be able to work under pressure.
- A reputable local Private Wholesale Company is looking for a Record Keeper to join our team at Hyderabad. The candidate must have minimum qualification of Intermediate (FA/FSc or equivalent), be proficient in mathematical calculations, must have strong verbal and written communication skills, must be able to maintain the official records accurately.

Essays Topics

- Should Students Be Allowed to Use Mobile Phones in Schools?
- Is social media More Harmful than Beneficial for Teenagers?
- Can Young People be Effective Leaders in Shaping Society Today?
- Should Artificial Intelligence be Integrated into Classroom Teaching?
- Are Today's Youth More Socially Responsible than Past Generations?
- How old leaders have fought against inequality discrimination and injustice?



مطالعائی پرچہ اُردو لازمی برائے جماعت انٹرمیڈیٹ سال دوم

(۲۰)

حصہ ”الف“ کثیر الانتخابی سوالات

(۲۰)

(اس حصہ میں سوالات کا انتخاب پورے نصاب سے کیا جائے گا)

سوال نمبر ۱

(۴۰)

حصہ ”ب“ مختصر سوالات کے جوابات

(۱۰)

دیئے گئے غزلیات کے اشعار کی تشریح شاعر کے حوالے اور مختصر تعارف کے ساتھ کیجئے۔

سوال نمبر ۲:

☆ جون ایلیا

☆ خواجہ میر درد

☆ مرزا غالب

☆ میر تقی میر

(۱۰)

دیئے گئے اسباق کے اقتباسات کی تشریح مصنف کے حوالے اور مختصر تعارف کے ساتھ کیجئے۔

سوال نمبر ۳:

☆ سراقبال مرحوم

☆ قحط الرجال

☆ عالم گیر کا انصاف

☆ سیرت محمدی کی جامعیت

☆ خوش طبعی

(۱۰)

درج ذیل اہم نظموں کا مرکزی خیال شاعر کے مختصر تعارف کے ساتھ تحریر کیجئے۔

سوال نمبر ۴:

☆ کتبہ کون لکھے گا؟

☆ چاند اور ستارے

☆ حضرت فاطمہ الزہرا کی رخصتی

☆ بدلی کا چاند

یا

دیئے گئے نظموں کے بند کی تشریح شاعر اور نظم کے حوالے کے ساتھ کیجئے۔

☆ چاند اور ستارے

☆ دو بہرے شاساوں کی ملاقات

☆ منقبت

(۱۰)

دیئے گئے اہم اسباق کا خلاصہ اور مصنف کا مختصر تعارف کیجئے۔

سوال نمبر ۵:

☆ سویرے جو کل آنکھ میری کھلی

☆ سحر ہونے تک

☆ زمین

☆ نئے دور کی لڑکی

☆ چار ماہ دار

(۴۰)

حصہ ”ج“ (بیانیہ جواب کے سوالات)

(۲۰)

مندرجہ ذیل شاعر کے کلام کی خصوصیات پر تبصرہ کیجئے:

سوال نمبر ۶:

☆ علامہ اقبال

☆ خواجہ میر درد

☆ مرزا غالب

☆ میر تقی میر

(۲۰)

مندرجہ ذیل نثر نگار کے طرز تحریر کی خصوصیات پر تبصرہ کیجئے:

سوال نمبر ۷:

☆ رشید احمد صدیقی

☆ محمد حسین آزاد

☆ مولوی عبدالحق

☆ سید سلیمان ندوی



PAK. STUDIES

Note: Do prepare for MCQs from all chapters.

SHORT QUESTIONS:

- Q.1 Describe the social condition of the Sub-Continent before the advent of Islam.
- Q.2 Define the Khilafat Movement.
- Q.3 Define the differences between Hindu and Muslim societies.
- Q.4 Define the four caste systems of Hindu society.
- Q.5 Write down any four points of the Fourteen Points of Quaid-e-Azam Muhammad Ali Jinnah.
- Q.6 Define the 3rd June Plan (Mountbatten Plan).
- Q.7 Describe the Two Nation Theory and the Lucknow Pact.
- Q.8 Define the Ideology of Pakistan and the objectives of the All-India Muslim League (AIML).
- Q.9 Define the characteristics of Pakistani culture.
- Q.10 Define the Indus Basin Treaty and the Islamic provisions of the 1973 Constitution.
- Q.11 Define the Objectives Resolution and the Indus Valley Civilization.
- Q.12 Define four differences between Urban and Rural Society and explain the Cultural Heritage of Pakistan.
- Q.13 Define any one regional language of Pakistan and write four agricultural problems of Pakistan.
- Q.14 Describe the importance of Agriculture in the economic development of Pakistan and name two natural resources.
- Q.15 Define Industrial Development of Pakistan and the objectives of the United Nations Organization (UNO).
- Q.16 Write a short note on the Non-Aligned Movement (NAM) and the relations of Pakistan with China and India.
- Q.17 Name the member countries of SAARC and write four international organizations in which Pakistan is an active member.

LONG QUESTIONS:

- Q.1 Define the Ideology of Pakistan in the light of Quaid-e-Azam Muhammad Ali Jinnah and Allama Iqbal's statements.
- Q.2 Write down the causes of the demand for Pakistan.
- Q.3 Write down important political events which took place between 1940 and 1947.
- Q.4 Explain the initial problems after creation of Pakistan.
- Q.5 Describe the importance of the geographical location of Pakistan.
- Q.6 Define culture and explain the basic features of Pakistani culture and society.
- Q.7 Describe Urdu as a national symbol of integrity.
- Q.8 Define the Foreign Policy of Pakistan.
- Q.9 Define the role of Judiciary in the protection of civil rights.
- Q.10 Describe the role of the Ombudsman in a democratic society.

(حصہ ”الف“ کثیر الانتخابی سوالات)

نوٹ: تمام ابواب سے کثیر الانتخابی سوالات کی تیاری کیجئے۔

(حصہ ”ب“ مختصر سوالات کے جوابات)

۱. اسلام کی آمد سے قبل برصغیر کے سماجی حالات بیان کریں۔
۲. تحریکِ خلافت کی تعریف کریں۔
۳. ہندو اور مسلم معاشروں کے درمیان فرق بیان کریں۔
۴. ہندو معاشرے کے چار ذاتی نظام کی وضاحت کریں۔
۵. قائدِ اعظم محمد علی جناح کے چودہ نکات میں سے کوئی چار نکات لکھیں۔
۶. 3 جون پلان / ماؤنٹ بیٹن پلان کی وضاحت کریں۔
۷. دو قومی نظریہ اور معاہدہ لکھنؤ کی وضاحت کریں۔
۸. نظریہ پاکستان اور آل انڈیا مسلم لیگ کے اغراض و مقاصد بیان کریں۔
۹. پاکستانی ثقافت کی خصوصیات بیان کریں۔
۱۰. سندھ طاس معاہدہ اور 1973ء کے آئین کی اسلامی دفعات بیان کریں۔
۱۱. قراردادِ مقاصد اور وادی سندھ کی تہذیب کی وضاحت کریں۔
۱۲. شہری اور دیہی معاشرے کے درمیان فرق اور ثقافتی ورثہ بیان کریں۔
۱۳. کسی ایک علاقائی زبان کی وضاحت کریں اور زرعی مسائل لکھیں۔
۱۴. پاکستان کی معاشی ترقی میں زراعت کی اہمیت بیان کریں۔
۱۵. صنعتی ترقی اور اقوام متحدہ کے مقاصد بیان کریں۔
۱۶. غیر وابستہ تحریک اور چین و بھارت سے تعلقات بیان کریں۔
۱۷. سارک کے رکن ممالک اور دیگر تنظیمیں لکھیں۔

(حصہ ”ج“، تفصیلی جوابات کے سوالات)

۱. قائد اعظم اور علامہ اقبال کے ارشادات کی روشنی میں نظریہ پاکستان کی اہمیت بیان کیجئے۔
۲. مطالبہ پاکستان کی وجوہات تحریر کیجئے۔
۳. ۱۹۴۰ تا ۱۹۴۷ کے اہم سیاسی واقعات بیان کیجئے۔
۴. قیام پاکستان کے بعد پیش آنے والے مسائل بیان کیجئے۔
۵. پاکستان کے جغرافیائی محل وقوع کی اہمیت تحریر کیجئے۔
۶. پاکستانی ثقافت کی وضاحت کیجئے اور پاکستانی ثقافت کی بنیادی خصوصیات بیان کیجئے۔
۷. اردو بطور قومی زبان بحث کیجئے۔
۸. پاکستان کی خارجہ پالیسی کے بنیادی اصول تحریر کیجئے۔
۹. شہریوں کے حقوق کے تحفظ کے لیے عدلیہ کا کردار بیان کیجئے۔
۱۰. جمہوری معاشرے میں وفاقی محتسب کا کردار بیان کیجئے۔



PREPARATION PAPER OF XII – PHYSICS FOR 2025-26

SECTION ‘A’

(MULTIPLE CHOICE QUESTION)

Note: It Consist MCQs. Each question carries equal marks.

SECTION ‘B’ & ‘C’

(SHORT & LONG – ANSWER QUESTIONS)

CHAPTER # 15(MOLECULAR THEORY OF GAS)

CRQ’s (Short Answered Questions)

- ☞ Obtain Boyle’s ,Charles’ Law, Avogadro’s law also derive general gas equation
- ☞ Show that average translational kinetic energy of ideal gas molecule is directly proportional to its absolute temperature
- ☞ Define the terms heat and temperature with different scales. Describe the triple point of water.

ERQ’s (Long Answered Questions)

- ☞ Show that $p = \frac{1}{3} \rho \bar{v}^2$ and also show that average translational kinetic energy of ideal gas molecule is directly proportional to its absolute temperature

Exercise: Q15.3, 15.4, 15.5, 15.6, 15.7, 15.8, 15.9 & 15.10

Solved Example: Q15.2, 15.3 & 15.4

CHAPTER # 16 (1ST LAW OF THERMODYNAMICS)

CRQ’s (Short Answered Questions)

- ☞ How does the first law of thermodynamics relate to the conservation of energy?
- ☞ Explore the concept of positive and negative work done by a gas depending whether the gas is expanding or compressing
- ☞ Define Specific heat capacity and molar specific heat capacity and derive relation between them.

ERQ’s (Long Answered Questions)

- ☞ Using 1st law of thermodynamics in two isotherms of an ideal gas at different temperatures show that $C_p - C_v = R$
- ☞ State and explain 1st law of thermodynamics apply it to explain
 - a) Isochoric process
 - b) Isobaric process
 - c) Isothermal process
 - d) Adiabatic process

Exercise: Q#16.1, 16.2, 16.3, 16.6, 16.7 & 16.8

Solved Example: Q# 16.1,16.3, 16.4 & 16.5

CHAPTER # 17(2ND LAW OF THERMODYNAMICS)

CRQ’s (Short Answered Questions)

- ☞ Describe the working principle of heat engine
- ☞ Describe the working principle of diesel engine
- ☞ Describe the working of petrol engine

ERQ’s (Long Answered Questions)

- ☞ What is Carnot engine? Give its construction and working also derive mathematical expression for its efficiency

- ☞ Give the two statements of second law of thermodynamics elaborate the concept of entropy on the basis of second law of thermodynamics
- ☞ Describe that refrigerator is a heat engine operating in reverse direction as that of an ideal heat engine and find its coefficient of performance(C.O.P)

Exercise: Q#17.1, 17.2, 17.3, 17.4, 17.5, 17.6, 17.7 & 17.8

Solved Example: Q#17.1, 17.2, 17.3, 17.4, 17.5

CHAPTER # 18(MAGNETIC FIELD)

CRQ's (Short Answered Questions)

- ☞ Derive an expression for the force on to the current carrying conductor placed in magnetic field?
- ☞ Define Ammeter and Voltmeter explains how galvanometer converted into an ammeter and voltmeter?

ERQ's (Long Answered Questions)

- ☞ Describe J.J Thomson's experiment for the determination of e/m ratio of an electron.
- ☞ State Ampere's Law. Derive the expression for magnetic field of induction inside a long solenoid **OR** Toroid
- ☞ Define galvanometer and also show that the current measure by the galvanometer is directly proportional to the deflection produced by the pointer i.e. $\theta \propto I$.

Exercise: Q# 18.1, 18.2, 18.3, 18.4, 18.5, 18.6, 18.7, 18.8,

Solved Example: Q# 18.1, 18.2, 18.3, 18.4, 18.5, 18.6, 18.7,

CHAPTER # 19(ELECTROMAGNETIC INDUCTION)

CRQ's (Short Answered Questions)

- ☞ Define motional E.M.F. with its mathematical results?
- ☞ State Lenz's law discuss its significance in the context of electromagnetic induction
- ☞ How does a step up transformer is differ from step down transformer
- ☞ Derive an expression for the energy stored in to the coil(inductor) during self-induction
- ☞ Describe the factors effecting upon the magnitude of induced E.M.F

ERQ's (Long Answered Questions)

- ☞ State Faraday's law of electromagnetic induction explains the phenomenon of mutual induction and self-induction derives expression for mutual inductance and self-inductance with its unit.
- ☞ Draw a labeled diagram of A.C. Generator and give its construction and working and derive the expression for A.C. voltage produced?
- ☞ What is transformer describe its construction, working and also derive the formula for its efficiency?

Exercise: Q# 19.1, 19.2, 19.3,19. 5, 19.6, 19.7, 19.8, 19.9

Solved Example: Q# 19.1, 19.2, 19.3, 19.4, 19.5, 19.6

CHAPTER # 20 (ALTERNATING CURRENT)

CRQ's (Short Answered Questions)

- ☞ Define R.M.S value of voltage and current?
- ☞ Describe the principle and working of electrocardiograph?
- ☞ What is resonance in AC circuits? Discuss its conditions
- ☞ Describe the behavior of resistor, capacitor and inductor in AC circuits
- ☞ Derive an equation for resultant voltage, impedance and phase angle in AC series RC OR RL circuits. Also draw a labelled diagram

ERQ's (Long Answered Questions)

- ☞ Explain the behavior of an RLC series circuit in terms of impedance, resonance and phase angle?
- ☞ Explain the behavior of an RLC parallel circuit in terms of impedance, resonance and phase angle?

Exercise: Q# 20.1, 20.2, 20.3, 20.4, 20.5, 20.6, 20.7, 20.8

Solved Example: Q# 20.1, 20.2, 20.3, 20.4, 20.5, 20.6, 20.7, 20.8

CHAPTER # 21 (SOLID STATE PHYSICS)

CRQ's (Short Answered Questions)

- ☞ What are amorphous materials and what are their uses? Give applications of Curie point.
- ☞ Define Young's Modulus and Shear Modulus also write their expressions
- ☞ Specify the importance of stress-strain curve.
- ☞ Describe the behavior of resistor, capacitor and inductor in AC circuits

ERQ's (Long Answered Questions)

- ☞ State Curie's law and the basis of curie's law, synthesize hysteresis curve for relationship between magnetic field strength and magnetic current.
- ☞ Describe the energy bands in solids. Describe superconductivity and its applications.

Exercise: Q# 21.1, 21.2, 21.3, 21.4, 21.5, 21.6, 21.7, 21.8

Solved Example: Q# 21.1, 21.2

CHAPTER # 22 (SOLID STATE ELECTRONICS)

CRQ's (Short Answered Questions)

- ☞ Describe a p-n junction (diode) and how holes and electrons are produced in semiconductor?
- ☞ Describe the operations of transistors.
- ☞ Explain the use of transistors as a switch and an amplifier (common-emitter).

ERQ's (Long Answered Questions)

- ☞ Define Intrinsic (pure) and doped semiconductors. And How the N-type and P-type semiconductors are produced
- ☞ Describe a P-N junction (diode) discuss its forward and reverse biasing. Describe the I-V characteristic curves of P-N junction.
- ☞ Define rectification and describe the use of diodes for half and full wave rectification.

Exercise: Q# 22.1, 22.2, 22.3, 22.4, 22.5, 22.6, 22.7, 22.8

Solved Example: Q# 21.1, 21.2

CHAPTER # 23 (DIGITAL ELECTRONICS)

CRQ's (Short Answered Questions)

- ☞ Explain the significance of signal levels in digital electronics and how they are represented in terms of voltage.

ERQ's (Long Answered Questions)

- ☞ Construct a truth table for a 2-input AND gate and 3-input OR gate. Explain how the truth table represents the relationship between input combinations and the resulting output.
- ☞ Construct a truth table for a 3-input NOR gate and 2-input XOR gate. Explain how the truth table represents the relationship between input combinations and the resulting output.

CHAPTER # 24 (RELATIVITY)

CRQ's (Short Answered Questions)

- ☞ Define Inertial Frames of Reference and Non- Inertial Frames of Reference
- ☞ Describe the effects of special theory of relativity.

ERQ's (Long Answered Questions)

- ☞ Explain the basic postulates of Einstein's special theory of relativity. Discuss length-contraction, mass variation and time-dilation.
- ☞ Explain the concept of mass-energy equivalence.

Exercise: Q# 24.1, 24.2, 24.3, 24.4, 24.5, 24.6, 24.7, 24.8, 24.9

Solved Example: Q# 24.1, 24.2, 24.3

CHAPTER # 25 (QUANTUM PHYSICS)

CRQ's (Short Answered Questions)

- ☞ What is black body radiation? Also state the laws of black body radiation.
- ☞ Explain the process of pair production briefly

ERQ's (Long Answered Questions)

- ☞ What is Photoelectric Effect? What remarkable experimental results are obtained about the photoelectric emission? Give Einstein's explanation of the photoelectric effect on the basis of quantum theory of radiation
- ☞ Describe conservation laws in pair production and annihilation of matter.
- ☞ Describe Compton's effect qualitatively.

Exercise: Q# 25.2, 25.3, 25.4, 25.5, 25.6, 25.7, 25.8, 25.9

Solved Example: Q# 25.1, 25.2, 25.3, 25.4

CHAPTER # 26 (ATOMIC PHYSICS)

CRQ's (Short Answered Questions)

- ☞ How X-rays are produced? Write some main properties of X-rays.
- ☞ What determines the characteristic wavelength emitted by an X-ray tube?
- ☞ Write the uses of lasers in the field of medicine, defense and communication.

ERQ's (Long Answered Questions)

- ☞ What is Laser? State the principle of Laser? Write the construction and working of Helium-neon laser.
- ☞ Write down Postulates of Bohr's atomic theory. Derive formula for radius and energy of n^{th} orbit of hydrogen atom.

Exercise: Q# 26.2, 26.3, 26.4, 26.5, 26.6, 26.7, 26.8

Solved Example: Q# 26.1, 26.2

CHAPTER # 27 (NUCLEAR PHYSICS)

CRQ's (Short Answered Questions)

- ☞ Why is nuclear decay described as spontaneous and random?
- ☞ Explain what happens during the nuclear fusion process.
- ☞ How are activity and decay constant related in radioactive materials?
- ☞ What is half-life of a radioactive element? Explain how half-life of radioactive element can be determined.

ERQ's (Long Answered Questions)

- ☞ What is meant by radioactivity? State the law of radioactive disintegration. Show that radioactive decay is exponential in nature.
- ☞ What is a nuclear reaction? Explain nuclear fission and fusion.
- ☞ What is a mass spectrograph? Explain its construction, principle and working. Derive its relevant mathematical expression.

Exercise: Q# 27.1, 27.2, 27.3, 27.4, 27.5, 27.7

Solved Example: Q# 27.2, 27.3, 27.4, 27.5

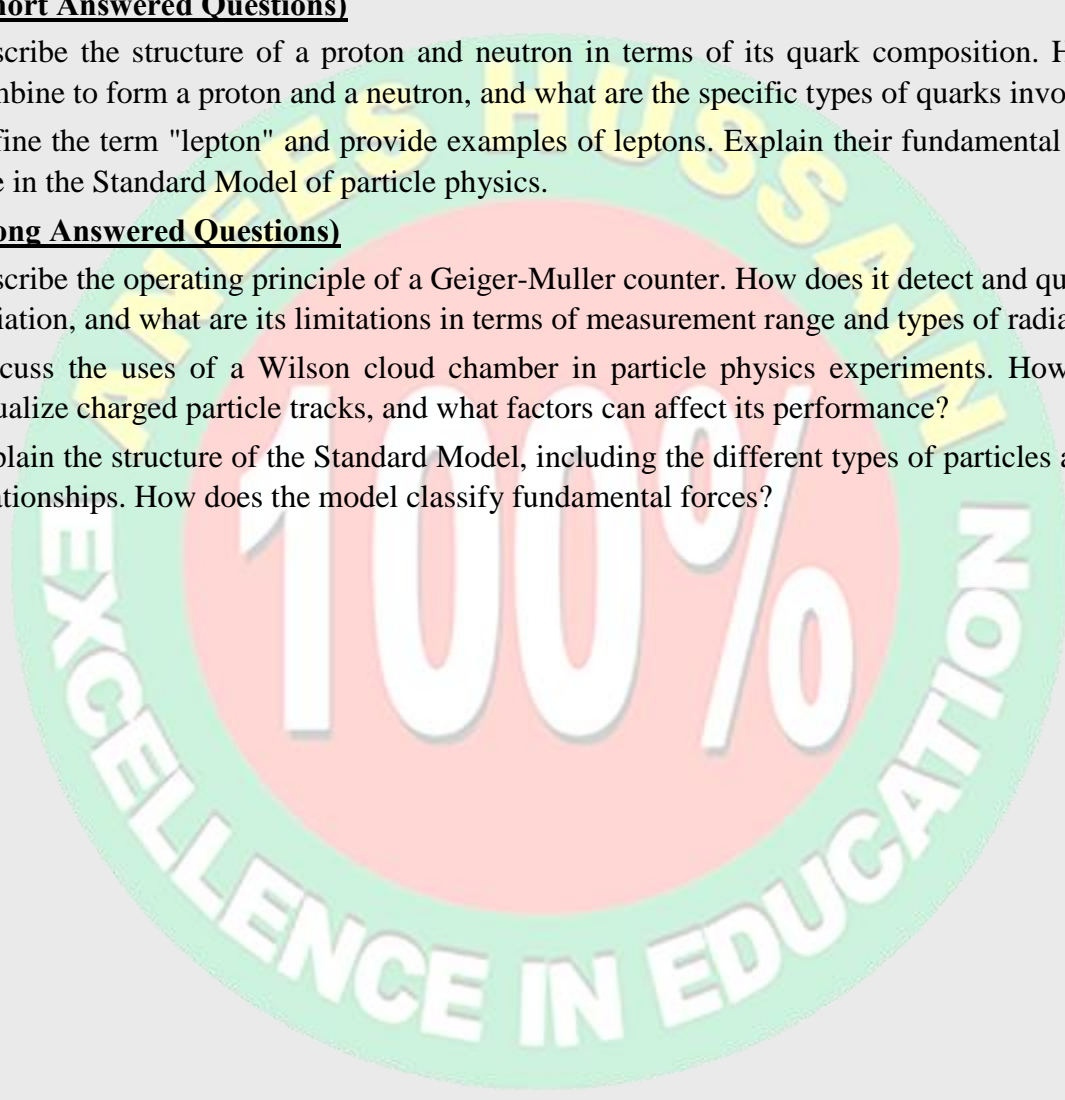
CHAPTER # 28 (PARTICLE PHYSICS)

CRQ's (Short Answered Questions)

- ☞ Describe the structure of a proton and neutron in terms of its quark composition. How do quarks combine to form a proton and a neutron, and what are the specific types of quarks involved?
- ☞ Define the term "lepton" and provide examples of leptons. Explain their fundamental properties and role in the Standard Model of particle physics.

ERQ's (Long Answered Questions)

- ☞ Describe the operating principle of a Geiger-Muller counter. How does it detect and quantify ionizing radiation, and what are its limitations in terms of measurement range and types of radiation detected?
- ☞ Discuss the uses of a Wilson cloud chamber in particle physics experiments. How does it visualize charged particle tracks, and what factors can affect its performance?
- ☞ Explain the structure of the Standard Model, including the different types of particles and their relationships. How does the model classify fundamental forces?



PREPARATION PAPER
XII – MATHEMATICS 2025 – 2026
IMPORTANT QUESTIONS

Chapter # 1	Only two MCQs
Chapter # 2	Ex # 2.1: Q # 3,4,5,6,7 Ex # 2.3: Q # 2, Q # 3 (ii) Q # 6 (vii) (ix) (x) (xi) (xiii) (xiv) (xvi) (xvii), Q# 7(vii)(viii) (ix), Q #8 (v) (vi) (viii) (x) (xi) (xii) (xiii) (xiv) (xv) Ex # 2.4: Q # 2, 3, 5, 6, 7, 8,9 Review CH # 2: Q # 11, 14 (vi) (vii), Q # 4, Q # 15
Chapter # 3	Ex # 3.1: Q # 3, 4 Ex # 3.2: Q # 1 (vii) (ix) (x), Q # 2 (All) Ex# 3.4: Q # 6, 8, 9, 10, 11, 12, 13 (iii), Q # 14, 15 Ex# 3.5: Q # 1 (x) (xi) (xii), Q # 2 (iv) (v) (vi), Q # 4, 5 Ex# 3.6: Q # 1, 2 Review CH # 3: Q # 2, 5, 6, 8, 9, 10
Chapter # 4	Ex # 4.1: Q # 6, 7, 9 Ex # 4.2: Q # 1(i) (ii) (iii) (vi) (vii), Q # 2 Ex # 4.3: Q # 3,5,6 Ex #4.4: Q # 2, Q # 3 (i) (ii) (iv) (v), Q # 4, 5, Example#1 (page # 128), Q 1 Review CH # 4: Q # 7, 10, 11, 12, 13
Chapter # 5	Ex # 5.1: Q: # 2, 4, 5, 6 Ex # 5.2: Q # 2, 3, 4, 5 Review CH # 5: Q # 4, 6, 7, 8
Chapter # 6	Ex # 6.1: Q # 3 (iv) (vi) Ex # 6.2: Q # 1 (vii) (viii) (ix), Q # 2 (iii) (iv) (vi) (vii) (viii), Q # 3 (vii) (viii) (ix), Q # 4 (viii) (ix) (xvi) (xvii) (xviii) (xix) Ex # 6.3: Q # 5, 9,11,12,13, 14 Ex # 6.4: Q # 1 (viii), Q # 2 (vi) (vii) (viii) (ix) (xi), Q # 3 (v) (vi) (vii) (ix), Q # 4 (v) (vi) (vii), Q # 5 Ex # 6.5: Q # 1, 2, 5, 6, 7, 9, 10, 11, 12, Ex # 6.6: Q # 1 (v), Q # 2 (vii) (ix) (x), Q # 5, 7 (iii) (iv), Q # 8 (i) (iii) (iv) Ex # 6.7: Q # 9, 6, 10, 12, 13, 14, 15 Review CH # 6: Q # 2 (v) (iv) (iii) (vii)
Chapter # 7	Ex # 7.1: Q # 8, 9, 10, 11, 12, 15, 16, 17, 18 Ex # 7.2: Q # 5, 6, 7, 8 Ex # 7.3: Q # 8, 9, 10, 11, 12, 13 Ex # 7.4: Q # 3 Ex # 7.5: Q # 6, 7, 9, 10 Ex # 7.6: Q # 1, 2(i) Ex # 7.7: Q # 2, 3, 4 Ex # 7.8: Q # 1, 2, 4, 5 Review CH # 7: Q # 6, 12, 14, 16

Chapter # 8	<p>Ex # 8.1: Q # 1 (iii), Q # 4, 5</p> <p>Ex # 8.2: Q # 1, 2 (ii) (v), Q # 3, 4, 5, 8, 9, 11, 12, 13</p> <p>Ex # 8.3: Q # 2, Q # 5 (ii), 6, 7, 8 (iii), 9, 11, 12, 13, 15, (iv),</p>
Chapter # 9	<p>Ex # 9.1: Q # 2 (v) (vi), Q # 3, 4, 5 (iii) (iv), Q # 6 (iii), Q # 7 (iii), Q # 8 (ii), Q # 9, 10</p> <p>Ex # 9.2: Example # 1, 2 (Page # 293), Q # 1, 2, 5, 6, 7, 8</p> <p>Ex # 9.3: Q # 1 (iii) (iv) (vi), Q # 2, 5, 6, 7, 8, 9, 10</p> <p>Ex # 9.4: Q # 1, 3, 4, 7, 8</p> <p>Ex # 9.5: Q # 1, 2, 3, 4 ((i) (iii) (iv), Q # 5, 6, 7</p> <p>Ex # 9.6: Q # 1, 2, 5, 6, 7, 8</p> <p>Review CH # 9: Q # 2, 4</p>
Chapter # 10	<p>Ex # 10.1: Example # 1, 2 (Page # 353), Q # 2, 3, 4, 5, Example (page # 354)</p> <p>Ex # 10.2: Example # 1, 2 (page # 358), Example # 1 (Page # 359), Example # 2 (Page # 360, 361), Example # 4 (Page # 365) Q # 1 (ii) (iii) (v) (viii), Q # 2 (i) (ii) (iii) (iv), Q # 3 (i) (ii) (iv), Q # 4, 5, 6, 7</p> <p>Ex # 10.3: Q # 1, 2, 3, 4</p> <p>Review CH # 10: Q # 2, 3 (i) (ii) (iv), Q # 4, 5 (iii) (iv), Q # 7, 8</p>
Chapter # 11	<p>Ex # 11: Q # 1, 4, 5, 6</p> <p>Review CH # 11: Q # 4, 5, 6, 7</p>
Chapter # 12	<p>Ex # 12.1: Q # 1 (i) (iv) (ii)</p> <p>Ex # 12.2: Q # 1, 2, 3, 5</p> <p>Ex # 12.3: Q # 1, 2, 3</p> <p>Ex # 12.4: Q 1 (i) (ii) (iv), Q # 2 (i) (ii), Q # 3 (i) (ii)</p> <p>Review CH # 12: Q # 4, 5, 6</p>

BIOLOGY



WORKSHEET FOR SESSION 2025 – 2026

(ACCORDING TO REDUCED SYLLABUS)

SECTION “A” (Objectives)

XII- ZOOLOGY

Note: SEE ALL QUESTIONS GIVEN WITHN NOTES CLASS TEST PAPERS.

SECTION B & C (SUBJECTIVE QUESTIONS)

CHAPTER 15: HOMEOSTASIS

LONG QUESTIONS:

1. Explain the detailed structure of Nephron with labelled diagram.
2. Explain the functions of kidney.
3. Explain the causes of kidney failure and its treatment.

SHORT QUESTIONS:

1. Why the physiological integration of internal body environment is important for living organisms?
2. Why it is important that positive and negative feedback mechanisms counter act upon each other?
3. How the aquatic Osmoregulators overcome the osmoregulatory problems?
4. Why animals excrete different types of excretory waste?
5. What is the use of counter current mechanism in kidney?
6. What is the role of kidney as an endocrine organ?
7. How kidney stones are formed?
8. What is the impact over the human body if kidneys suddenly or gradually loss the filtering abilities?
9. What are the problems associated with kidney transplant?
10. What is hypothermia? How body overcome this condition?
11. Explain the causes of Renal stone with its treatment
12. Differentiate between osmoconformers and osmoregulators?
13. Write a short about methods of osmoregulation in fresh water,marine and terrestrial organisms?
14. Explain type of excretory products in relation to habitat?
15. Explain the structure and functions of kidney?
16. What is hyperthermia ? How body overcome this conditions ?

CHAPTER 16: SUPPORT & MOVEMENT

LONG QUESTIONS:

1. Explain the structure of skeletal muscles and ultra structure of skeletal muscle fiber with labelled diagram
2. Explain the repair process of simple fractures.
3. Explain the cross-bridge cycle of muscle contraction with labelled diagram

SHORT QUESTIONS:

1. How is the cartilage useful for our skeletal system?
2. Give a comparison of major types of joints
3. How is the healing of fractured bone initiated pain developing?
4. How to conduct a first aid treatment for joint injuries and fractures?
5. Give a comparison of types of muscles.
6. Why is calcium essential for cross bridge formation? regulates muscle contraction
7. How the nervous coordination mechanism?
8. How is tetany different from tetanus?
9. Explain the different types of cartilage.
10. Difference between bones and cartilages?
11. Write a short note on following disorders:
 - Spondylosis
 - Sciatica
 - Disc slip
 - Arthritis
12. Difference between smooth , skeletal and cardiac muscles?
13. Explain cross bridge cycle?
14. Write a short note on hamstring and quadriceps muscles?

CHAPTER 17: NERVOUS COORDINATION

LONG QUESTIONS:

1. Describe structure and function of neurons.
2. Describe mechanism of action membrane potential.
3. Explain vascular and infectious disorders of CNS.
4. Describe anatomy and physiology of human brain.

SHORT QUESTIONS:

1. Why neurolemma is polarized?
2. What do you mean by threshold potential?
3. Why impulses move faster in myelinated neurons?
4. Why interneurons are called association neuron?
5. What do you mean by saltatory conduction?
6. Differentiate between following
 - (a) Electrical and Chemical synapse
 - (b) CNS and PNS
 - (c) Excitatory neurotransmitters and Inhibitory neurotransmitters
 - (d) Parasympathetic nervous system and Sympathetic nervous system
7. Define following terms
 - Reflex arc
 - Stroke
 - Meningitis
8. Explain the pathway of message transmission to the effector organ ?
9. What are the types of neurons ?
10. What do you know about velocities of nerve impulse?
11. Give classification of neuro transmitters?
12. Explain the effects of following drugs on nervous coordination:
.Heroin .Cannabies .Nicotine .Alcohol
13. Why receptors are called transducers?give there types?

CHAPTER 18: CHEMICAL COORDINATION

LONG QUESTIONS:

1. Define hormone? Describes hormone action with the help suitable diagram.
2. Explain pituitary gland their lobes and hormones of pituitary glands.

3. Explain position and physiology of adrenal gland.
4. Describe hormones and their functions of other endocrine tissues.
5. Describe mechanism of positive feedback.

SHORT QUESTIONS:

1. Why hydrophilic hormones need secondary messengers?
2. Why hormones are called chemical messengers?
3. Why posterior pituitary is called neurohypophysis?
4. Enlist hormones of anterior pituitary?
5. Why pancreas is called as exocrine and endocrine gland?
6. Why secretions of adrenal cortex are called corticosteroids?
7. Differentiate between following
 - (a) Hypothyroidism and Hyperthyroidism
 - (b) Insulin and glucagon
 - (c) Calcitonin and Parathyroid hormone
 - (d) Lipophilic and hydrophilic hormones
8. Define following terms
 - (a) Hormones
 - (b) Goiter
 - (c) Thymosin
 - (d) Atrial natriuretic hormone
 - (e) Erythropoietin
9. Explain the chemical nature of hormones?
10. What are the two types of neurosecretory cells secreted by hypothalamus ,enlist them ?
11. Enlist the tropic hormones?
12. Write a short note on the thyroid gland and its hormones?
13. Write a short note on the diabetes mellitus?
14. What do you know about RAAS ?
15. Write a short note on the following disorders;
 - (a) hypothyroidism
 - (b) hyperthyroidism
 - (c) cushing disease
 - (d) Addison disease

CHAPTER 19: ANIMAL BEHAVIOR

LONG QUESTIONS:

1. Define innate behavior in term of reflexes shown by vertebrates and invertebrates
2. Describe the construction of an intricate web by a spider a instinct behavior.
3. What is imprinting? Describe the imprinting in young ducks, How is it adaptive?
4. Describe the agonistic behavior and relate it with the maintenance of social order in terms of territories and dominance hierarchies.

SHORT QUESTIONS:

1. Define stimuli. How organisms respond to different stimuli?
2. What is reflex? Give three examples of reflexes in vertebrates.
3. What is the relationship between heredity and behavior?
4. Define biological rhythms. How are biological rhythms important to man?
5. What do you know about taxis? Give examples of positive taxis and negative taxis.
6. What is the difference between innate behavior and learning behavior?
7. How do bees communicate about food sources?
8. How do old world monkeys defend their territory?

CHAPTER 20: REPRODUCTION

LONG QUESTIONS:

1. Describe the structures of male reproductive system identifying their functions.
2. Explain the principal reproductive hormones of human male and explain their role in the maintenance and functioning of reproductive system
3. Explain the structures of female reproductive system and describe their functions.
4. Describe phases of menstrual cycle.

SHORT QUESTIONS:

1. Why urethra in male is called urinogenital duct?
2. Why hormonal system of female is better than male?
3. Why testes descend down in human male foetus before birth?
4. What are symptoms of gonorrhoea?
5. Why inner uterine wall thicken during secretory phase?
6. Enlist causes of male and female infertility.
7. Differentiate between the following
 - (a) Testes and Ovaries
 - (b) Spermatogenesis and Oogenesis
 - (c) Asexual and Sexual reproduction
8. Write a short note on male's accessory glands?
9. Write a short note on spermatogenesis and Oogenesis ?
10. What do you know about the hormonal regulation of elisted hormones :
 - (a) Testestrone
 - (b) FSH
 - (c) LH
 - (d) Inhibin
 - (e) GNRH
11. Explain the causes of miscarriages?
13. Write a short note on Syphillis?

CHAPTER 21: DEVELOPMENT & AGING

LONG QUESTIONS:

1. Explain blastula/blastocyst with emphasis on segmentation cavity.
2. List the tissues and organs formed from the three germ layers.
3. Through experimental narration, describe the role of the nucleus and cytoplasm in controlling development.
4. Describe the events of development in humans in terms of first, second and third trimesters.
5. Describe the maternal derived abnormalities (rubella, abnormal neural tube, thyroid gland and limb development).

SHORT QUESTIONS:

1. Why cleavage in birds and reptiles called meroblastic?
2. Why morula is named so?
3. How embryonic tissues influence other embryonic tissues?
4. Define organizers and differentiate between primary and secondary induction.
5. Differentiate between blastula and gastrula.

Why monozygotic twins having same sex?

SECTION "A" (Objectives)

XII – BOTANY

Note: SEE ALL QUESTIONS GIVEN WITHN NOTES CLASS TEST PAPERS.

SECTION B & C (SUBJECTIVE QUESTIONS)

CHAPTER 22: CHROMOSOMES & DNA

LONG QUESTIONS:

1. Describe the chromosomal theory of inheritance?
2. Describe the semi conservative process of DNA replication?

3. Describe the chemical structure of chromosome.
4. Describe the process of transcription during gene expression.
5. What is gene regulation how gene regulate during expression?

SHORT QUESTIONS:

1. Why DNA is negatively charged molecules?
2. Why replication is called semi-conservative process?
3. Do genes of prokaryotic cell and eukaryotic cells are different in structure? If so give the main differences between them?
4. What are leading and lagging strand of DNA?
5. Give the name of enzymes involved in replication of DNA, also give their brief functions.
6. Do introns are transcribed, and involve in translation?
7. Give changes occur in mRNA during transport from nucleus to cytoplasm.
8. Give site at ribosome and their functions during translation.
9. Draw structure of tRNA and give functions of their different sites.
10. Do mutation is always harmful? Justify you answer.
11. What is the structure of chromosomes?
12. What are the types of chromosomes?
13. Explain the evidence of DNA as a hereditary material?
14. What do you know about models of DNA replications ?
15. What are the source and type of mutations?
16. Explain chromosomal mutations?
17. Write a short note on following diseases;
 - (a) PKU
 - (b) sickle cell anemia
 - (c) turner's syndrome
 - (d) down's syndrome
 - (e) klinefelter's syndrome

CHAPTER 23: INHERITANCE

LONG QUESTIONS:

1. Explain epistasis with reference to the inheritance of coat colour in Labrador retriever.
2. Describe inheritance of two traits with the help of genetic cross.
3. Describe ABO blood system in human with genetic cross.
4. Explain sex determination in human and sex linked (x-linked) trait with genetic cross.
5. A male has co-dominant blood group marry with female whose blood group is homozygous A, both have a male child who marry with a female with recessive blood group what will be the chances of blood group in their children? Prove it with genetic cross.
6. Determine law of independent assortment ?
7. Explain law of purity of gamete?

SHORT QUESTIONS:

1. Why Rh-incompatibility could be a danger to the developing foetus and mother?
2. Why haemophilia is common in human male?
3. What do you mean by sex-influenced trait?
4. Differentiate between

<ul style="list-style-type: none"> • Linkage and crossing over • Monohybrid and dihybrid cross • X-linked trait and Y linked trait 	<ul style="list-style-type: none"> • Autosomes and sex chromosome • Incomplete dominance and co dominance
---	---
5. Why human male are heterogametic?
6. What do you mean by dichromacy and monochromacy?
7. What do you known about ZZ and ZW in sex determination?
8. Why incomplete dominance is called partial dominance? W

9. Define following terms

(a) Genetics

(b) Allele

(c) Gene

(d) Karyotype

(e) Mutant

(f) Linkage

(g) multiple allele

(h) Test cross

(i) test cross

(j) Back cross

(k) Crossing over

(l) Erythroblastosis foetalis

(m) Isoagglutinin.

(n) Protanopia

10. What do you know about blood group?

11. What blood group is considered as universal acceptor and as universal donor?

12. Write a note on erythroblastosis foetalis?

13. Explain sex linkage inheritance?

14. Write a short note on colour blindness and muscular dystrophy?

CHAPTER 24: EVOLUTION

LONG QUESTIONS:

1. State and explain the contribution of Lamarck in organic evolution
2. Write in detail Darwin theory of natural selection
3. Discuss the process of origin of single cell Eukaryotes.
4. Describe the Theory of Natural Selection.
5. Describe Hardy Weinberg theorem?
6. Write a note about genetic drift?
7. What is speciation and its mechanism?

SHORT QUESTIONS:

1. Differentiate between the following:
 - (a) Special creation and evolution
 - (b) Lamarckism and Darwinism
 - (c) Neodarwinism
 - (d) Evolution of prokaryotes and eukaryotes
 - (e) Convergent and Divergent evolution
 - (f) Genetical drift
2. How do homologous organs support the theory of evolution?
3. What are analogous organs? Give example.
4. How did Alfred Wallace contribute to Charles Darwin regarding Natural Selection?
5. What do you understand by "descent with modification"?
6. How does Neo-Darwinism differ from Darwinism?
7. How does sympatric speciation differ from parapatric speciation?
8. Justify Lamarck as an early proponent of evolution.
9. What is genetic drift?
10. List out the factors affecting allele frequency

CHAPTER 25: MAN & HIS ENVIRONMENT

LONG QUESTIONS:

1. What is a biogeochemical cycle? Explain the nitrogen cycle in detail.
2. Describe the effects of Carbon dioxide and global warming on human health.
3. What is succession? Describe different stages of secondary succession with examples.

SHORT QUESTIONS:

1. Why is the biogeochemical cycle named so?
2. Differentiate between nitrification and de-nitrification?
3. How does energy flow between trophic levels?
4. How does ecological succession affect the community?
5. What are the types of reservoirs?
6. Explain the water cycle?

7. Define water table and aquifers?
8. Give the concept of trophic level?
9. Give the concept of productivity?
10. What are the ecological pyramids?

CHAPTER 26: BIOTECHNOLOGY

LONG QUESTIONS:

1. Explain in detail the process in recombinant DNA technology?
2. Explain the process of polymerase chain reaction

SHORT QUESTIONS:

1. Why Amp^R and Lac^Z are used in construction of rDNA?
2. What do you mean by RFLPS?
3. Why restriction enzymes are called molecular scissors?
4. What do you mean by palindrome?
5. Enlist enzymes use in rDNA technology?
6. Write a note on tissue culturing
7. Differentiate between callus structure and suspension culture
8. Explain the techniques of tissue culturing
9. Write a note on transgenic animal, plant, bacteria
10. Differentiate between organ culture and cell culture
11. What are the steps of DNA integration of DNA insert into vectors?
12. What are technique applied for selection of vector?
13. Explain tissue culture?
14. Write a note about transgenic bacteria , transgenic animal, and transgenic plant?
15. How biotechnology has played role in vaccine development?
16. How gene therapy has played role in detection and treatment of following diseases:
 - (a) Hemophilia
 - (b) Adrenoleukodystrophy
 - (c) Cystic fibrosis

CHAPTER 27: BIOLOGY & HUMAN WELFARE

LONG QUESTIONS:

1. Explain in detail different steps of sewage treatment.
2. Explain vaccination and its importance.
3. Describes the role of microbes in food processing and sewage treatments.

SHORT QUESTIONS:

1. Why vaccination is important for infectious disease?
2. List the outstanding milk producing breeds of cow.
3. What do you mean by integrated diseases and its management?
4. What is the role of livestock?
5. Differentiate between following
 - (a) Selection and Backcross
 - (b) Vegetables of summer and vegetables of winter
 - (c) Selection and Hybridization

CHEMISTRY



PREPARATION PAPER OF XII-CHEMISTRY FOR 2025-26

CHAPTER # 01: (CHEMISTRY OF REPRESENTATIVE ELEMENTS)

SHORT QUESTION ANSWER

- Complete the following reactions.
 - $Zn + NaOH \rightarrow \dots\dots\dots$
 - $Cl_2 + NaOH \rightarrow \dots\dots\dots$
 - $CaOCl_2 + H_2O \rightarrow \dots\dots\dots$
 - $MgCO_3 + H_2SO_4 \rightarrow \dots\dots\dots$
 - $P + N_2 \xrightarrow{\Delta} \dots\dots\dots$
 - $Na + 2H_2O \rightarrow \dots\dots\dots$
 - $Mg + N_2 \rightarrow \dots\dots\dots$
 - $K + O_2 \rightarrow \dots\dots\dots$
 - $Na / Hg + 2H_2O \rightarrow \dots\dots\dots$
 - $Rb + O_2 \rightarrow \dots\dots\dots$
- Explain the general group trend of ionization energy, atomic size, electronegativity, oxidation state in the periodic table.
- Give reasons for any four of the following:
 - Boiling point of halogens increases down the group in the periodic table?
 - Electronegativity decreases regularly from top to bottom in s-block elements?
 - Alkali metals are good conductor of electricity?
 - Fluorine is the strongest oxidizing agent?
- Give the diagonal relationship between any two of the following pairs of elements.
* Li – Mg * Be – Al * B – Si

DETAILED QUESTION ANSWER

- Draw a flow diagram of contact process and describe various steps involved in the manufacturing of sulphuric acid.
- Explain with the help of diagram of Castner Kellner cell, how caustic soda is obtained by the electrolysis of aqueous sodium chloride?
- Write the balance equations for the following chemical process.
 - A piece of aluminum is dipped into concentrated sulphuric acid.
 - Ferric chloride is mixed with an aqueous solution of caustic acid.
 - Sodium burns in excess of air.
 - Magnesium is heated with nitrogen gas.
 - Potassium is put into ethyl alcohol.
 - Chlorine gas is passed through an aqueous solution of caustic soda.
- What is bleaching powder? How is it prepared? Give the reaction of bleaching powder with water and hydrochloric acid.

CHAPTER # 02: (CHEMISTRY OF OUTER TRANSITION (d-BLOCK) ELEMENTS)

SHORT QUESTION ANSWER

1. With the help of crystal field theory, explain the colour of transition metal complex ions.
2. Why is the electronic configuration of chromium (Cr) $4s^1, 3d^5$ instead of $4s^2, 3d^4$ while that of copper (Cu) is $4s^1, 3d^{10}$ instead of $4s^2, 3d^9$?
3. What are chelating agents explain with examples.
4. Write I.U.P.A.C names of the following complexes:
 - $[\text{Pt}(\text{NH}_3)_2 \text{Cl}_4]$
 - $\text{NH}_4[\text{Cr}(\text{SCN})_4 (\text{NH}_3)_2]$
 - $[\text{Cu} (\text{CN})_4]^{-2}$
 - $[\text{Co} (\text{H}_2\text{N} - \text{CH}_2 - \text{CH}_2 - \text{NH}_2)_3] (\text{NO}_3)_3$
 - $[\text{Co} (\text{NH}_3)_3 \text{Cl}]$
 - $[\text{Cr} (\text{en})_3] \text{Cl}_3$
 - $\text{Na}_3 [\text{Cu} (\text{OH})_2 (\text{NO}_3)_2]$
 - $\text{Na}_2 [\text{Fe} (\text{CN})_6 \text{NO}]$
 - $[\text{Fe} (\text{NO}_2)_6]^{-3}$
 - $[\text{Cr}(\text{en})_2\text{Cl}_2]\text{Cl}$
 - $\text{Na}_3[\text{Fe} (\text{CN})_5 (\text{NO})]$
 - $\text{Ni}(\text{CO})_4$
 - $[\text{Cr}(\text{NH}_3)_6]^{+3}$
 - $[\text{Fe}(\text{CN})_6]^{-3}$
 - $[\text{Co}(\text{en})_3] (\text{NO}_3)_3$
 - $[\text{Cu}(\text{NH}_3)_4]^{2+}$
 - $[\text{AuCl}_4]^{-1}$
 - $\text{Na}_3[\text{Fe}(\text{CN})_5\text{NO}]$
5. Give scientific reasons of the following:
 - H_2O and NH_3 acts as ligands but H_3O^+ & NH_4^+ do not.
 - Transition element show variable oxidation.
 - Most of the transition elements and their compounds are paramagnetic.
 - Ligands are generally called Lewis bases.
 - In d block elements, 4s orbitals are filled prior to 3d orbitals but 4s electrons are lost first in ionization.
6. Write down the balanced chemical equations for the following:
 - i. Reaction of conc. Nitric acid with copper.
 - ii. Reaction of conc. sulphuric acid with copper.
 - iii. Reaction of permanganate with oxalic acid.
 - iv. Reaction of manganese with dilute sulphuric acid.
 - v. Reaction of iron with chlorine.
7. Why transition elements have the tendency to form alloy? Write the name of three alloys of transition element along with their compositions

DETAILED QUESTION ANSWER

1. Describe any two of the following properties of 'd' block element:
 - Magnetic properties
 - Catalytic properties
 - Variable oxidation state
2. Describe how 99.99% pure copper is obtained from its chalcopyrite ore.

CHAPTER # 03 : (ORGANIC COMPOUNDS)

SHORT QUESTION ANSWER

1. Define Isomerism. Give its types with examples.
2. What is vital force theory? Why was it disapproved?
3. What is meant by Reforming? Why was it consider a useful technique?
4. Define the following:
 - Polymerization
 - Homologous series
 - Functional group
 - Polymers
5. Write the classification of organic compounds with examples.
6. How is coal produced under the earth crust? Write the name of four types of coal and mention the %age of carbon content in them.
7. Define Homologous series and write its three general properties.

DETAILED QUESTION ANSWER

1. Explain destructive distillation of coal? What are the various products obtained from it?
2. Describe the natural sources of organic compounds.

CHAPTER # 04 : (NOMENCLATURE OF ORGANIC COMPOUNDS)

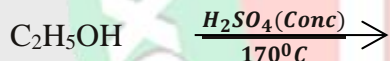
Practice from assignment already provided.

CHAPTER # 05 : (HYDROCARBONS)

ETHENE:

PREPARATION OF ETHENE:

1. By the dehydration of Alcohol



2. By the dehydrohalogination of Ethyl Chloride

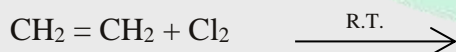


REACTION OF ETHENE:

3. Addition of Hydrogen.



4. Addition of Halogenation.



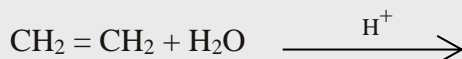
5. Addition of HCl.



6. Addition of HOCl (Chlorine water)



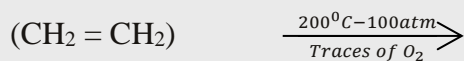
7. Addition of Water.



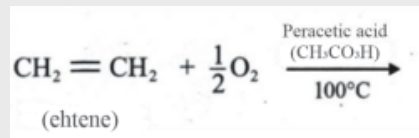
8. Combustion Reaction



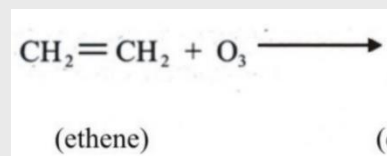
9. **Polymerization.**



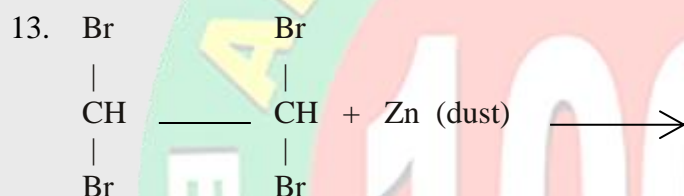
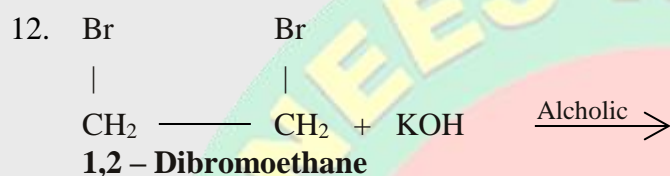
10. **Epoxidation.**



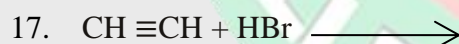
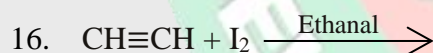
11. **Ozonolysis.**



PREPARATIONS OF ETHYNE:

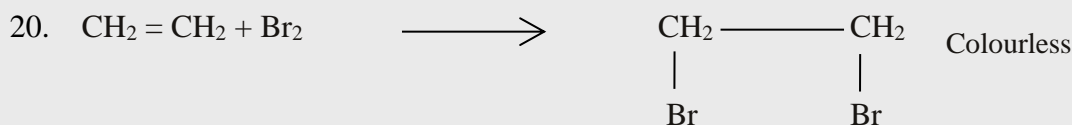


CHEMICAL REACTION OF ETHYNE:

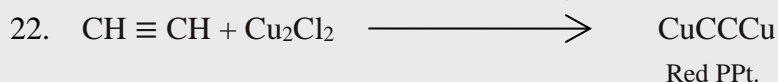


Simple Chemical Test Distinguish Between

An Alkane & Alkene



An Alkane and an Alkyne



Aliphatic & Aromatic

23. C_6H_6 $\xrightarrow{\text{Combustion}}$ burns (Dark black smoke)

24. C_6H_{14} $\xrightarrow{\text{Combustion}}$ burn (without smoke)

SHORT QUESTION ANSWER

1. Describe the mechanism of chlorination?
2. Give Equation:
 - (i) Ethanol to ethane
 - (ii) Chloro ethane to ethane
 - (iii) Vicinal di halid to ethane
 - (iv) Ethyne to ethane
3. Convert Ethene into
 - (i) Ethane
 - (ii) 1, 2 – Dibromoethane
 - (iii) Poly ethene
 - (iv) Chloroethanol
 - (v) 1, 2-Ethandiol
4. Describe the structure of Sp^2 OR Sp Hybrid molecules?
5. Give equation:
 - (i) Ethyne from tetrabromoethane
 - (ii) 1, 2-dibromoethane to Ethyne
6. Convert Ethyne into:
 - (i) Ethane
 - (ii) 1, 1, 2, 2-Tetrachloroethane
7. What is Markownikoff's rule? Describe with an example?
8. Draw the orbital structures of ethane and ethyne and describe the types of hybridization in each them
9. How are white solid and red-solid (P.M.) obtained from acetylene? Give chemical equations.
10. How does the ethyne react with the following?
 - a) Cl_2 water
 - b) water
 - c) Ozone
11. Acetylene show acidic properties. Give two reactions to justify it.
12. What would happen when ethyne react with:
 - a) Silver nitrate
 - b) Water in the presence of $HgSO_4$ and H_2SO_4
13. How is Ethyne obtained from the following?
 - a) Dichloroethane
 - b) Tetrahlo alkane
14. Give two methods for the preparation of acetylene.
15. Explain the structure of benzene by molecular orbital treatment
16. Why does the benzene ring enter into electrophilic substitution reaction? Explain the mechanism of Friedel craft alkylation of benzene?
17. Give one equation only in each of the following cases to show that the.
 - a) Benzene behaves a saturated hydrocarbon
 - b) Benzene behaves as a unsaturated hydrocarbon
18. Define and explain the following with examples:
 - a) Ortho para directors
 - b) Meta directors
19. Brief about the following conversations.
 - a) Benzene to m-nitrotoulene
 - b) Benzene to benzoic acid
20. Give the names of the product when each of the following, is nitrated.
 - a) Toluene
 - b) Benzoic acid
 - c) Phenol

SHORT QUESTION ANSWER

1. Draw the orbital structure Ethyne and explain how it is distinguished from ethene by a laboratory test.
2. Give the equations and write the name of final product in the following process.
 - Ethyne is treated with hydrogen bromide.
 - 1, 2-dibromoethane is heated with alcoholic KOH
 - Ethene is ozonolysed
 - Ethyne is treated with H₂O in the presence of H₂SO₄/HgSO₄
3. Why benzene show stability towards addition reaction? Write the mechanism of nitration of benzene.
4. Explain Isomerism with its types.

DETAILED QUESTION ANSWER

1. (a) What is meant by orientation of benzene? Explain ortho and meta directing group. Write the equation for the preparation of TNT and m-nitro toluene from benzene.

CHAPTER # 06 : (ALKYL HALIDES AND AMINES)

SHORT QUESTION ANSWER

1. Prepare the following
 - (a) Methane from methyl magnesium chloride
 - (b) Ethyl alcohol from methyl magnesium iodide
 - (c) Ter. Butyl alcohol from methyl magnesium iodide
 - (d) Ethane from methyl magnesium iodide
2. Convert the followings:
 - (a) Methyl magnesium bromide into acetone
 - (b) Ethylchloride into ethyl amine
 - (c) Ethyl chloride into ethyl alcohol
 - (d) Ethylamine into imine
3. What are alkyl halides? Define primary, secondary and tertiary alkyl halides
4. What is Grignard reagent? Write the equation of its reaction with
 - * H₂O
 - * CO₂
 - * CH₃NH₂
5. Why are alkyl amines basic in nature? How a primary alkyl amine is converted into secondary and tertiary amine? Give the equation.
6. What are Amines? How are they classify? Give it's method of preparation and it's basic character.

DETAILED QUESTION ANSWER

1. How can you define nucleophilic substitution reactions? Describe the mechanisms of SN₁ and SN₂ reactions.

OR Outline the stepwise mechanism of SN₁ reaction between:
2- bromo, 2 – methyl propane and NaCN.

And SN₂ reaction between bromoethane and NaOH

OR Between bromoethane and NaOH.
2. What is β-elimination? Discuss the mechanisms of E₁ and E₂ reactions.
3. What are organometallic compounds? How is Grignard reagent prepared? Write down the reactions of Grignard reagent ester
4. What is meant by nucleophile? Give the mechanism of
 - SN¹ reaction between 3° alkyl halide and NaOH
 - SN² reactions between 1° alkyl halide and NaCN

CHAPTER # 07 : (ALCOHOLS, PHENOLS & ETHER)

SHORT QUESTION ANSWER

1. What is Lucas reagent? Describe its use to distinguish between primary, secondary and tertiary alcohol.
2. Write the equations for the following chemical Process
 - (i) Reduction of acetic acid with LiAlH_4 .
 - (ii) Hydration of ethene with hot concentrated H_2SO_4
 - (iii) Oxidation of ethanol with acidified dichromate.
 - (iv) Hydrolysis of diazonium salt
3. Write down two simple chemical tests which detect alcohol and phenol.
4. Write down the preparation alcohol from Grignard reagent
5. Write down the preparation of Alcohol from reduction of Aldehyde ,ketone ,carboxylic and ester.

DETAILED QUESTION ANSWER

1. Write the equations for the following possible conversions.
 - (i) Phenol to benzoquinone
 - (ii) Ethyl bromide to ethanol
 - (iii) 2°- alcohol to carboxylic acid
2. Write the equation and name the final product when phenol reacts with the following
 - (i) Hot and concentrated nitric acid.
 - (ii) Concentrated sulphuric acid at 100°C
 - (iii) Bromine water
 - (iv) Sodium metal
3. Explain the following with scientific reason
 - (i) Boiling point of ether is less than alcohol?
 - (ii) Alcohols are soluble in water?
 - (iii) Ethanol is liquid but ethyl chloride is gas at room temperature?
4. Write down two methods of preparation of Ethers.

CHAPTER # 08 : (CARBOYNL COMPOUNDS 1: ALDEHYDES AND KETONES)

SHORT QUESTION ANSWER

1. Give reasons for the following:
 - i. The boiling point of aldehydes and ketones is lower than alcohol.
 - ii. Formaldehyde is highly soluble in water as compared to other aldehydes.
 - iii. Oxidation of aldehydes is faster than ketones.
2. Describe how aldehydes are distinguished from ketones by the following laboratory test.
 - (i) Tollen's reagents
 - (ii) Fehling solution

DETAILED QUESTION ANSWER

1. Write the equation for the reaction of acetaldehyde with the following:
 - i. Chromic acid (H_2CrO_4)
 - ii. Lithium Aluminum hydride (LiAlH_4)
 - iii. Zinc mercury amalgam
2. Write the equation and give the name of major product in the following chemical process.
 - i. Oxidation of acetone with acidified $\text{K}_2\text{Cr}_2\text{O}_7$.
 - ii. Reduction of acetaldehyde with NaBH_4 .
 - iii. Hydration of ethyne in the presence of $\text{H}_2\text{SO}_4/\text{HgSO}_4$

3. Write the equation for the nucleophilic addition reaction if formaldehyde treated with
 - i. Hydrogen cyanide
 - ii. Primary alcohol
 - iii. Methyl magnesium bromide
 - iv. Ammonia
4. Write the equation for the following reactions.
 - * Oxidation of 2°-alcohol with $K_2Cr_2O_7/H_2SO_4$
 - * Reaction of phenol with H_2SO_4 at $20^\circ C$
 - * Reduction of acetaldehyde with Zn(Hg) amalgam
 - * Reaction of an aldehyde with tollen's reagent
 - * Dehydration of ethyl alcohol at $170^\circ C$ in conc. H_2SO_4
 - * Reaction of ethylene glycol with periodic acid.
 - * Reduction of acetic acid with $LiAlH_4$
 - * Oxidation of 1°-alcohol with PCC.

CHAPTER # 9 : (CARBONYL COMPOUNDS II: CARBOXYLIC ACID AND FUNCTIONAL DERIVATIVES)

SHORT QUESTION ANSWER

1. Explain why?
 - i) The boiling points of carboxylic acids are high than alcohol?
 - ii) The structure of carboxylic acid is trigonal planar?
2. What happens when:
 - iii) Formaldehyde reacts with a mixture of Potassium dichromate & sulphuric acid.
 - iv) Carboxylic acid reacts with thionyl chloride
 - v) Carboxylic acid reacts with ammonia
3. Write the natural sources of following carboxylic acids.
 - (a) Formic acid
 - (b) Acetic acid
 - (c) Valeric acid
 - (d) Caproic acid
4. Name four derivative of carboxylic acid and write the equations of their preparation

DETAILED QUESTION ANSWER

1. How carboxylic acid is prepared by:
 - i) Carbonation of Grignard reagent
 - ii) Hydrolysis of alkyl nitriles
 - iii) Oxidation of primary alcohols
2. Discuss the acidic nature of carboxylic acid, how it is stronger than other organic compounds and weaker than mineral acids.
3. Convert the followings:
 - i) Carboxylic acid into acid anhydride
 - ii) Ester into carboxylic acid
 - iii) Toluene into benzoic acid

CHAPTER # 10 : (BIOCHEMISTRY)

DETAILED QUESTION ANSWER

1. What are Carbohydrates? Give their classification on the basis of structure.

2. What are Proteins? Classify various types of proteins on the basis of their function.
3. Classify carbohydrates on the basis of structure and give their biological significance.

CHAPTER # 11 : (INDUSTRIAL CHEMISTRY)

1. Write the names of two synthetic and two natural polymers
2. Explain scope of pharmaceutical industry.
3. What is antihistamine drug ? give symptoms
4. Describe preparation and properties and uses of nylon and polyvinyl chloride.

CHAPTER # 12 : (ENVIRONMENTAL CHEMISTRY)

1. Write the name of four segments of atmosphere and mention in which segment we live.
2. Describe the chemistry involves due to the presence of oxides of nitrogen and sulphur in the troposphere.
3. Explain the causes of depletion of ozone layer.
4. What is industrial smog and how is it formed?
5. How was ozone layer formed? Explain the causes of depletion of ozone layer

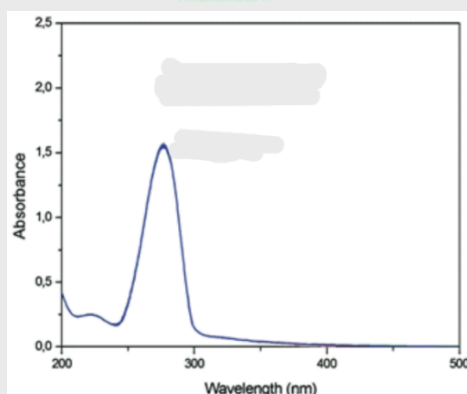
DETAILED QUESTION ANSWER

1. What is the effect of acid rain on human health and what measures can be taken to prevent acid rain?
2. What is the main cause of Global warming? How does it effect on weather pattern?
3. Describe the chemistry involves due to the presence of oxides of nitrogen and sulphur in the troposphere.
4. What is Green house effect? How does human activities contributes to the enhancement of the green house effect?
5. What is meant by acid rain describe its causes and adverse effect on human life style.

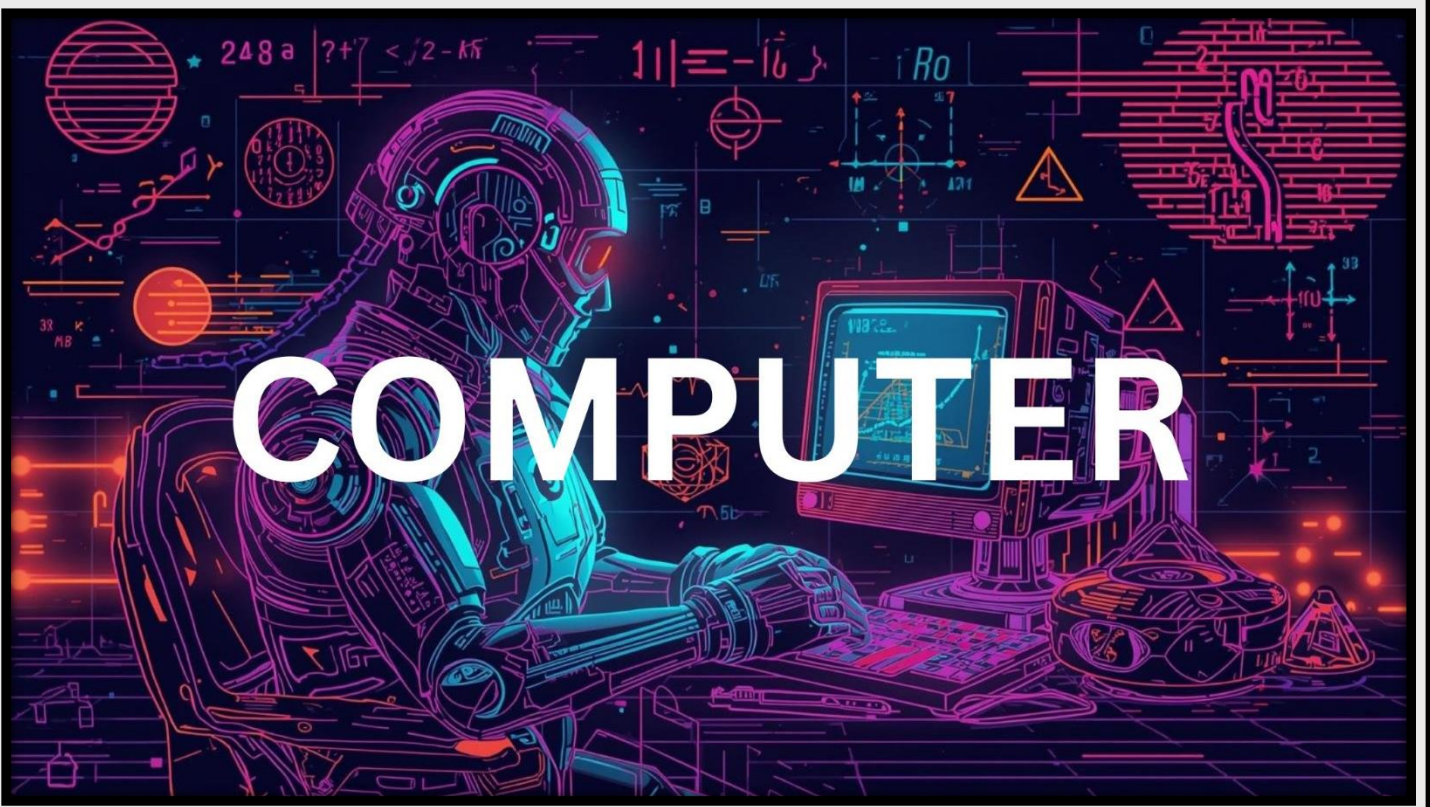
CHAPTER # 13 : (SPECTROSCOPY)

SHORT QUESTION ANSWER

1. Differentiate between atomic absorption and emission spectroscopy.
2. What is the purpose of U.V-visible spectroscopy? What is its applications in chemistry and biology?
3. What is proton NMR spectroscopy? How does it work? Give its applications.
4. Explain λ_{\max} with the help of U.V-visible spectrum of ethanol (C_2H_5OH).



COMPUTER



SHORT QUESTIONS

CHAPTER NO.1: CONCEPT OF COMPUTER PROGRAMMING

1. Define problem solving.
2. Make a list of all problem solving tools.
3. Difference between low level language and high level language.
4. Write three points for Pascal language.
5. Difference between compiler and interpreter.
6. Write any three characteristics of programming languages.
7. Write any three advantages of portable languages.
8. Define object oriented programming.
9. What do you know about top down approach?
10. Write any three advantages of algorithm.
11. Characteristics of successful computer program.

CHAPTER NO.2: ALGORITHM AND FLOWCHART

1. Define Algorithm with example.
2. Define flowchart with example.
3. Write all flowchart symbol with its description.
4. Difference between micro and macro flowchart.
5. Write any three advantages of flowchart.
6. Why do we need a flowchart?
7. Write any three disadvantages of flowchart.

CHAPTER NO.3: AN OVERVIEW OF C LANGUAGE

1. Draw a sketch of a computer C program.
2. Difference between syntax error and logical error.
3. Write any four rules of naming variable.
4. Define format specifier?.
5. Define IDE of C++ compiler.
6. Difference between compiling a program and executing a program.
7. Define comments with its types.
8. Define Escape sequence with its any three sequences.
9. What is pre-processor directives?
10. What is a statement terminator in C language?
11. Write some words about good programming practice.

CHAPTER O.4: C – FUNDAMENTALS

1. Define identifiers and keywords.
2. Difference between variable and constant.
3. Write any four Rules for naming variable.
4. How to declare variable.

CHAPTER NO.5: OPERATORS AND EXPRESSIONS

1. Difference between relational operator and Boolean operator.
2. What is order or precedence ?
3. Define increment and decrement operator.
4. Difference between assignment(=) and equality(==) operator.
5. Difference between divide and modulus operator.

CHAPTER NO.6: INPUT AND OUTPUT STATEMENT

1. List out all unformatted input and output functions.
2. Difference between scanf and gets function.
3. Difference between printf and getchar function.
4. What is the function of 'address operator' in scanf function?

CHAPTER NO. 7: SELECTION CONTROL STRUCTURES

1. Define control structure.
2. Difference between if..else and else...if statement.
3. Define nested if statement with example.
4. Define switch statement with syntax and example program.

CHAPTER NO.8: ITERATION CONTROL STRUCTURE

1. Define for loop.
2. Define the term pre test loop and post test loop.
3. Explain briefly nested loop.
4. Difference between break and continue statement.
5. What is the use of gotoxy statement in C program?
6. Difference between do..while and while loop.

CHAPTER NO.9: FUNCTIONS

1. Define function
2. Write any three advantages of functions.
3. Define library functions.
4. Difference between user defined and pre defined functions.
5. Define the term function calling.
6. Explain function that return a value.

CAHPTER NO.10: ARRAY

1. Define Array.
2. Difference between integer array and string array.
3. How many types of array? Explain briefly.

4. programming with array.

CHAPTER NO.11: STRINGS

1. Explain the process of initializing of string array with the help of array diagram.
2. Write any 10 built in string functions with its syntax. programming with string functions

CHAPTER NO. 13: POINTERS

1. Define pointer in C language.
2. Describe pointer operators.
3. Programming with pointers.

CHAPTER NO.15: DATA MANAGEMENT SYSTEMS

1. Define Database with popular database softwares.
2. Write any three advantage of DBMS.
3. Difference between DBMS and flat file system.
4. Write any three disadvantages of DBMS.
5. Define the following: * Filed * entry * record * sql * file * design view Course

SECTION 'C' DESCRIPTIVE QUESTION/ANSWERS

1. Describe formatted and unformatted input functions with syntax in detail.
2. Describe different data types used in C language with example.
3. Describe formatted and unformatted output functions with syntax in detail.
4. Describe computer errors with its different types occur in C language.
5. Describe data types used in Ms Access in details.
6. Describe different Database models used in any database system.
7. Describe different relationship used in Ms Access.
8. Write a program to generate prime number with drawing a flowchart.
9. Write a program to find out the greatest number of giving any three numbers.
10. Describe main objects of Ms Access.
11. Describe any four C operators in detail and with the help of program for each.
12. Describe different order of precedence used in C language.
13. Describe all iterative control structures with the help of program.

Note:

1. Reading book is mandatory.
2. All lectures and programming work are important.
3. All practice work is important for comprehensive and Annual examination.
4. Do not rely only on preparation paper you have to prepare overall.