UG–AS-1417 BCHES–11

U.G. DEGREE EXAMINATION —
JULY 2024.

Chemistry

First Semester

CHEMISTRY – I

Time : 3 hours Maximum marks : 70

PART A — ($3 \times 3 = 9$ marks)

Answer any THREE questions out of Five questions in 100 words.

All questions carry equal marks.

1. Define Steric effect. Give an example.

2. Draw the molecular structure of Propanol, Isopropanol and 2- Methyl- 2-propanol.

3. Write the uses of Alkali metals.

4. Define the types of chemical bonds.

5. What is Van der Walls equation?

PART B — ($3 \times 7 = 21$ marks)

Answer any THREE questions out of Five questions in 200 words.

All questions carry equal marks.

6. Write a short note on Hyperconjugation.

7. Write notes on the naming of compounds containing alcohols.

8. Discuss about the atomic radii and ionic radii.

9. Explain about Octet rule.

10. Discuss the following:

    (a) Van der Waal's Gas

    (b) Determination of Van der Waal's constants

PART C — ($4 \times 10 = 40$ marks)

Answer any FOUR questions out of Seven questions in 500 words.

All questions carry equal marks.

11. Explain about the IUPAC naming of Alkanes, Alkenes and Alkynes.

12. Discuss in detail about the naming of organic compounds with more than one functional group.

13. Describe about the modern periodic table.

14. Explain the following: (6+4)

    (a) Hydrogen bonding and its properties

    (b) Fajan's Fule

15. Discuss in detail about the following: (6+4)

    (a) Relation between surface energy and surface tension

    (b) Capillary rise

16. Write in details about the following effects with examples: (3+3+4)

    (a) Electromeric effect

    (b) Resonance effect

    (c) Inductive effect

17. Discuss in detail about the following: (5+5)

    (a) Transition metals

    (b) Inner Transition metals

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UG-AS-1418 BZOOSA-11

U.G. DEGREE EXAMINATION – JULY 2024.

Zoology

First Semester

ANIMAL DIVERSITY

Time : 3 hours Maximum marks : 70

SECTION A — (3 × 3 = 9 marks)

Answer any THREE questions out of Five questions in 100 words.

All questions carry equal marks.

1. What are the categories of classification of living organisms?

2. Write a short note on blood glands of earthworm.

3. What is Sexual dimorphism?

4. Define Placoid scales.

5. Define caccum.

SECTION B — (3 × 7 = 21 marks)

Answer any THREE questions out of Five questions in 200 words.

All questions carry equal marks.

6. Discuss about general characters of Hemichordates.

7. Describe and illustrate the physiology of Paramecium.

8. Demonstrate and illustrate the locomotion in Prawn.

9. Elaborate the Urinogenital system of Calotes.

10. Write a short note on circulatory system of rabbit.

SECTION C — (4 × 10 = 40 marks)

Answer any FOUR questions out of Seven questions in 500 words.

All questions carry equal marks.

11. Write a short note on Classification of Phylum Porifera upto Class Levels.

12. Discuss about the habit, habitat, morphology, and structure of Earthworm.

13. Explain Water-vascular or ambulacral system of sea star and its functions.

14. Write a brief note on nervous system of shark.

15. Demonstrate the Urino Genital System of rabbit in detail.

16. Describe the habit, habitat, morphology and structure of Paramecium.

17. Explain phylum annelida with the characters and discuss about their classifications.

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UG–AS–1419 **BCAS–13**

U.G. DEGREE EXAMINATION — JULY 2024

Computer Application

First Semester

OFFICE AUTOMATION

Time : 3 hours Maximum marks : 70

PART A — (3 × 3 = 9 marks)

Answer any THREE questions out of Five questions in 100 words.

All questions carry equal marks.

1. What is Memory Units?

2. How to minimize and maximize the ribbon?

3. What is line spacing?

4. What is spreadsheet?

5. What is Internet?

PART B — ($3 \times 7 = 21$ marks)

Answer any THREE questions out of five questions in 200 words.

All questions carry equal marks

6. Discuss the types of software.

7. Give the steps involved for replacing a given text.

8. Explain the component of a chart in Excel.

9. Explain the steps of Incorporating Slide Show Effects.

10. Discuss in detail addressing with CC and BCC.

PART C — ($4 \times 10 = 40$ marks)

Answer any FOUR questions out of Seven questions in 500 words.

All questions carry equal marks.

11. Discuss about the Generation of Computers give example.

12. Briefly about the Inserting and deleting rows and columns.

13. Explain in detail about the power point views.

14. Explain the creation and modifications of Table in MS-Word with example.

15. Explain the Web Browser and its functions.

16. Discuss the different for implementing Power point.

17. Write an assembly language program to subtract two numbers.

UG-AS-1420 BCHES-21

B.Sc. DEGREE EXAMINATION – JULY 2024.

Chemistry

Second Semester

CHEMISTRY II

Time : 3 hours Maximum marks : 70

SECTION A — (3 × 3 = 9 marks)

Answer any THREE questions out of Five questions in 100 words.

1. State Aufbau's Principle and Hund's rule of maximum multiplicity.

2. What is Michael addition?

3. Define Refraction index and specific refractive index.

4. What are organic pesticides? List out its uses.

5. Account on the stability of carbocations and carbanions.

SECTION B — (3 × 7 = 21 marks)

Answer any THREE questions out of Five questions in 200 words.

6. Predict the hybridisation and geometry of NH_3 and H_2O.

7. Write the mechanism of Stobbe condensation and Benzoin condensation.

8. Explain the types and applications of liquid crystals.

9. Discuss the composition and uses of petroleum, kerosene and synthetic gasoline.

10. Explain ozonolysis and epoxidation reactions with examples.

SECTION C — (4 × 10 = 40 marks)

Answer any FOUR questions out of Seven questions in 500 words.

11. State the term quantum numbers. Explain its various types.

12. Elaborate on the mechanism of cope elimination and Hofmann degradation.

13. Discuss the effect of temperature on surface tension and viscosity.

14. Account on the natural fertilisers and chemical fertilisers.

15. Discuss the preparation, properties and reactions of acetylene.

16. Account on hydroboration and hydroxylation reaction.

17. (a) Mention the electronic configuration and stability of the following elements — F, Xe and P.

    (b) Draw and explain the molecular orbital diagram for N_2. (3+7)

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UG-AS-1421 BZOOSA-22

U.G. DEGREE EXAMINATION —
JULY 2024.

Zoology

Second Semester

ECONOMIC ZOOLOGY

Time : 3 hours Maximum marks : 70

PART A — ($3 \times 3 = 9$ marks)

Answer any THREE questions out of Five questions in 100 words.

All questions carry equal marks.

1. Rhinoceros beetle.

2. *Pinctada fucata*

3. Give two scientific name of honey bees

4. Cocoon

5. Deep litter system

PART B — ($3 \times 7 = 21$ marks)

Answer any THREE questions out of Five questions in 200 words.

All questions carry equal marks.

6. Give a note on pests of oil seed.

7. Explain the importance of pearl culture techniques.

8. List out the types of honey bees with its characters.

9. Brief note on diseases in silk worms.

10. How will you do the disease management in fowls? Explain

PART C — ($4 \times 10 = 40$ marks)

Answer any FOUR questions out of Seven questions in 500 words.

All questions carry equal marks.

11. Draw and explain the pests of rice.

12. Explain the methodology involved in culture of prawn.

13. Elaborate the modern methods of aquarium management.

14. Give a detailed account on life history of *Bombyx mori*.

15. Explain the rearing methods of fowls in detail.

16. Write an essay on integrated farming with its significance.

17. Discuss on harvesting, processing of cocoon, reeling and extraction of silk.

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UG-AS-1422 BCHES–31

U.G. DEGREE EXAMINATION — JULY 2024

Chemistry

Third Semester

CHEMISTRY – III

Time : 3 hours Maximum marks : 70

PART A — (3 × 3 = 9 marks)

Answer any THREE questions out of Five questions in 100 words.

All questions carry equal marks.

1. Write the preparations of halides.

2. Give role of aluminium alloys.

3. Explain Gattermann —Koch reaction

4. What is collision theory? Explain with example.

5. Explain isoprene rule with example.

PART B — ($3 \times 7 = 21$ marks)

Answer any THREE questions out of Five questions in 200 words.

All questions carry equal marks.

6. Explain the characteristics of metal oxides, hydroxides and peroxides.

7. Discuss the chemistry of silicones and Charcoal.

8. What are the roles of Friedal-Craft's alkylation and arylation in organic chemistry?

9. Give the significance of entropy and free energy of activation.

10. Write the synthesis and structural elucidation of menthol.

PART C — ($4 \times 10 = 40$ marks)

Answer any FOUR questions out of Seven questions in 500 words.

All questions carry equal marks.

11. Briefly explain the extraction, properties and uses of lithium and beryllium.

12. Write a note on the following

    (a) Extraction, Properties and Uses of Aluminium

    (b) Manufacture of glass with types

13. Explain the Characteristics of ortho, meta and para directing groups with examples.

14. Discuss the following

    (a) Methods to determine the order of reactions

    (b) Arrehenius equation and concept of energy of activation

15. Write the synthesis and structural elucidation of piperine and nicotine.

16. Derive the rate constants for I, II, III and Zero order reactions and examples.

17. Briefly explain the Zieglar alkylation and Chichibabin reaction with examples.

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UG–AS–1423 BPHYSA–11

U.G. DEGREE EXAMINATION –
JULY 2024.

Physics

First Semester

ALLIED PHYSICS – I

Time : 3 hours Maximum marks : 70

SECTION A — (3 × 3 = 9 marks)

Answer any THREE questions out of Five questions in 100 words.

All questions carry equal marks.

1. What are Lissajous figures? Give its uses.

2. Explain variation of surface tension with temperature.

3. What are reversible and irreversible Processes?

4. Write a note on circuit control and protective devices.

5. What do you mean by direct vision prism and constant deviation prism?

SECTION B — (3 × 7 = 21 marks)

Answer any THREE questions out of Five questions in 200 words.

All questions carry equal marks.

6. Explain how the A.C frequency is measured using sonometer.

7. Obtain an expression for the total work done in stretching a wire.

8. (a) Elaborate thermodynamic equilibrium.

   (b) State and explain the laws of thermodynamics.

9. Write the notes on:

   (a) Switch and its types, and

   (b) Fuses, circuit breaker and relays.

10. Explain the defects of images:

   (a) Coma,

   (b) Distortion.

SECTION C — (4 × 10 = 40 marks)

Answer any FOUR questions out of Seven questions in 500 words.

All questions carry equal marks.

11. Derive the three laws of transverse vibration in strings. How will you verify them using Melde's experiment?

12. Elaborate:

    (a) Elastic constants,

    (b) Bending of beam, and

    (c) Young's modulus by non-uniform bending.

13. Explain:

    (a) Linde's process of liquefaction of air.

    (b) Adiabatic demagnetization.

14. Elaborate the following:

    (a) Loss of energy due to sharing of charges, and

    (b) Magnetic field due to a current carrying conductor.

15. Explain how combination of two small angled prisms to produce dispersion without deviation and deviation without dispersion.

16. With neat diagram, explain the production of ultrasonic waves by magnetostriction oscillator method. Also give merits and demerits of this method.

17. Write the notes on

    (a) Molecular theory of surface tension, and

    (b) Excess of pressure inside a drop and bubble.

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UG–AS–1424 BCHES–41

U.G. DEGREE EXAMINATION – JULY, 2024.

Chemistry

Fourth Semester

CHEMISTRY — IV

Time : 3 hours Maximum marks : 70

PART A — ($3 \times 3 = 9$ marks)

Answer any THREE questions out of Five questions in 100 words.

All questions carry equal marks.

1. What is chemical reduction? Give example.

2. Write the principles of green chemistry.

3. Discuss the anomalous behavior of oxygen.

4. What are the toxicities of Cadmium?

5. Draw the structures of carbohydrates.

PART B — ($3 \times 7 = 21$ marks)

Answer any THREE questions out of Five questions in 200 words.

All questions carry equal marks.

6. Write a note on forth floatation and calcination.

7. Explain microwave and ultrasound assisted green synthesis.

8. Discuss the preparation and properties of nitrogen and oxygen.

9. Explain the electronic configurations and uses of d-block elements.

10. Explain in details of vitamin deficiency diseases.

PART C — ($4 \times 10 = 40$ marks)

Answer any FOUR questions out of Seven questions in 500 words.

All questions carry equal marks.

11. Write the roles of distillation, fractional crystallization and ion exchange methods.

12. Briefly explain the solvent free reactions and solid supported synthesis.

13. Discuss in detail about the electro negativity, electron affinity and oxidation states of halogens.

14. Explain the d-block elements of oxides, halides and sulphates.

15. Write the uses of chloroquine, pamaquine, chloramine-T and Iodoform.

16. Briefly explain the structure and shape of xenon compounds.

17. Write a note on lanthanide contraction and characteristics of noble gases.

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UG-AS–1425 BPHYSA-22

U.G. DEGREE EXAMINATION — JULY 2024.

Physics

Second Semester

ALLIED PHYSICS — II

Time : 3 hours Maximum marks : 70

PART A — ($3 \times 3 = 9$ marks)

Answer any THREE questions out of Five questions in 100 words.

All questions carry equal marks.

1. Differentiate interference and diffraction.

2. Define magnetic orbital quantum number. Give its significance.

3. Write a note on stellar energy.

4. Give the postulates of wave mechanics.

5. How Zener diode works as a voltage regulator?

PART B — ($3 \times 7 = 21$ marks)

Answer any THREE questions out of Five questions in 200 words.

All questions carry equal marks.

6. Explain the Michelson's method of finding the velocity of light.

7. Elaborate the electronic configuration of elements and periodic classification of elements.

8. Describe the shell model of the nucleus.

9. Explain length contraction using Lorentz transformation.

10. Explain how NAND gate can be used as an universal gate.

PART C — ($4 \times 10 = 40$ marks)

Answer any FOUR questions out of Seven questions in 500 words.

All questions carry equal marks.

11. Give the Fresnel's explanation for rectilinear propagation of light.

12. Explain the principle, theory and experimental setup of Stern Gerlach experiment.

13. Explain the construction and working of GM counter and give its merits and demerits.

14. (a) Obtain the Schrodinger's time-independent wave equation for matter waves.

    (b) Obtain a relation for mass-energy equivalence.

15. (a) Explain the function of half adder and full adder with necessary logic circuit and truth table.

    (b) Write a note on RC coupled transistor amplifier.

16. Explain the theory of transmission grating.

17. What are various nuclear models? Explain briefly the liquid drop model of the nucleus.

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UG–AS–1426 BCHES–51

U.G. DEGREE EXAMINATION — JULY 2024

Chemistry

Fifth Semester

INORGANIC CHEMISTRY – I

Time : 3 hours Maximum marks : 70

PART A — ($3 \times 3 = 9$ marks)

Answer any THREE questions out of Five questions in 100 words.

All questions carry equal marks.

1. Write short note on crystal defect.

2. Define coordination chemistry and list the terminologies in coordination chemistry.

3. Define N/P ratio.

4. Define protic solvent with all example.

5. Write any three uses of organolithium compounds.

PART B — $(3 \times 7 = 21$ marks)

Answer any THREE questions out of Five questions in 200 words.

All questions carry equal marks.

6. Explain the difference between Schottky and Frenkel defects.

7. What is EAN rule? Calculate EAN for: (2+2+3)

   (a) $[Co(N11_3)_6]^{3-}$

   (b) $[Fe(CN)_6]^{3-}$

   (c) $[Ni(NH_3)_6]^{2+}$

8. Discuss the following: (4+3)

   (a) Magic numbers

   (b) Packing fraction

9. Discuss in detail about aprotic solvents.

10. Prepare organoboron compounds and write its uses.

PART C — ($4 \times 10 = 40$ marks)

Answer any FOUR questions out of Seven questions in 500 words.

All questions carry equal marks.

11. Write a short note on the following : (6+4)
    (a) Derive Born equation
    (b) Bravais lattices

12. Explain about the optical isomerism in octahedral coordination compounds.

13. Write note on radioactive decay.

14. Explain about the chemical reactions with solvents such as water, liquid NH_3, Liquid N_2O_4 and Liquid H_2S.

15. Discuss in detail about 16 and 18 electron rule for organometallic compounds.

16. Discuss the following: (3+3+4)
    (a) Liquid Drop Model
    (b) Shell Nuclear Model
    (c) Collective Model

17. Explain about the synthesis and reactivity of vanadates, molybdates and manganite.

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UG-AS-1427 BCHES–52

U.G. DEGREE EXAMINATION — JULY 2024

Chemistry

Fifth Semester

ORGANIC CHEMISTRY – I

Time : 3 hours Maximum marks : 70

PART A — ($3 \times 3 = 9$ marks)

Answer any THREE questions out of Five questions in 100 words.

All questions carry equal marks.

1. Write any three applications of Isoquinoline

2. Define Chirality and its types.

3. Why is the boiling point of the cis isomers is higher than that of trans?

4. Write the mechanism of benzidine rearrangement.

5. Explain the basic principle of Infrared Spectroscopy.

PART B — ($3 \times 7 = 21$ marks)

Answer any THREE questions out of Five questions in 200 words.

All questions carry equal marks.

6. Explain about the chemistry of Furan.

7. Discuss the following: (4+3)

   (a) Asymmetric molecules

   (b) Molecular dissymmetry

8. Discuss in detail about the classification of conformations.

9. Explain in detail about Wagner – Meerwein rearrangement reaction with mechanism.

10. Discuss the factors affecting chemical shift in NMR Spectroscopy.

PART C — ($4 \times 10 = 40$ marks)

Answer any FOUR questions out of Seven questions in 500 words.

All questions carry equal marks.

11. Describe in detail about Fisher Indole Synthesis.

12. Explain various inter translational representation of molecules (any three like Fischer to Sawhorse).

13. Explain in detail about the nomenclature of geometrical isomers.

14. Discuss in detail about the following reactions with mechanism: (5+5)

    (a) Beckmann rearrangement

    (b) Schmidt rearrangement

15. Describe about the interpretation of IR spectra in the simple molecules.

16. Describe the following: (5+5)

    (a) Skraup Synthesis

    (b) Optical activity of Allenes

17. Explain the following in the NMR spectroscopy: (5+5)

    (a) Spinning of proton in a magnetic field

    (b) Position of signals

UG-AS-1428 BCHES–53

U.G. DEGREE EXAMINATIONS — JULY 2024

Chemistry

Fifth Semester

PHYSICAL CHEMISTRY – I

Time : 3 hours Maximum marks : 70

PART A — ($3 \times 3 = 9$ marks)

Answer any THREE questions out of five questions in 100 words.

All questions carry equal marks.

1. Explain the types of systems in thermodynamics.

2. Define solutions and write its types.

3. Write the limitations of Nernst equation

4. What is the reason for the blue colour of the sky?

5. What is electromagnetic radiation?

PART B — ($3 \times 7 = 21$ marks)

Answer any THREE questions out of five questions in 200 words.

All questions carry equal marks.

6. Explain Zeroth law and first law of thermodynamics and its applications.

7. How do you determine osmotic pressure using the following methods: (3+4)

   (a) Pfeiffer's Method

   (b) Berkeley and Hartley's Method

8. Write the difference between electrolytic cell and voltaic cell.

9. Discuss in detail about Tyndall effect.

10. Explain the selection rules for pure rotational spectra.

PART C — ($4 \times 10 = 40$ marks)

Answer any FOUR questions out of seven questions in 500 words.

All questions carry equal marks.

11. Explain the following: (5+5)

   (a) Joule-Thompson effect

   (b) How does enthalpy change occur in various thermodynamic processes

12. Derive the following laws: (5+5)

(a) Henry's Law

(b) Nernst Distribution law

13. Define electrode. Explain its types and applications.

14. Write a short note on lyophilic and lyophobic colloids.

15. Discuss the following: (5+5)

(a) Relationship between the energy and frequency of electromagnetic radiation

(b) Relationship between the energy and wavelength of electromagnetic radiation

16. Explain about the important process and applications of colloids.

17. How will you measure the lowering of vapour pressure by using. (3+3+4)

(a) Barometric method

(b) Monometric method

(c) Ostwald and Walker's Dynamic method

UG–AS–1429 BCHES–54

U.G. DEGREE EXAMINATION — JULY 2024

Chemistry

Fifth Semester

POLYMER CHEMISTRY

Time : 3 hours Maximum marks : 70

PART A — ($3 \times 3 = 9$ marks)

Answer any THREE questions out of Five questions in 100 words.

All questions carry equal marks.

1. Write any three differences between chain growth and step growth polymerization.

2. How do crystal structures affect the properties of polymers?

3. Explain end group analysis.

4. Write any three differences between geometric isomerism and optical isomerism in polymer molecule.

5. What are biomedical polymers? Give the examples.

PART B — $(3 \times 7 = 21$ marks)

Answer any THREE questions out of Five questions in 200 words.

All questions carry equal marks.

6. How do thermosetting polymers differ from thermoplastic polymers? Explain with the help of a chemical reaction.

7. Describe the crystal structures of polymers.

8. Discuss in detail about polydispersity of polymers.

9. Write a short note on cellulose and amylose.

10. Explain about electrically conducting polymers.

PART C — $(4 \times 10 = 40$ marks)

Answer any FOUR questions out of Seven questions in 500 words.

All questions carry equal marks.

11. Compare the advantages and limitations of solution polymerization and suspension polymerization.

12. Write a short note on polymer morphology.

13. Discuss the mathematical equations used to calculate the number average molecular weight (Mn) and weight average molecular weight (Mw) of a polymer sample. How are these calculations related to the molecular weight distribution?

14. How does the presence of different substituents affect the isomerism of substituted 1, 3-butadienes?

15. What are biodegradable polymers? Give the classification of biodegradable polymers.

16. Discuss in detail about the factors affecting the properties of polymers.

17. Discuss in detail about polymer composites.

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UG–AS–1430 BCHES–61

U.G. DEGREE EXAMINATION – JULY, 2024.

Chemistry

Sixth Semester

INORGANIC CHEMISTRY — II

Time : 3 hours Maximum marks : 70

PART A — ($3 \times 3 = 9$ marks)

Answer any THREE questions out of Five questions in 100 words.

All questions carry equal marks.

1. What is lattice energy? Give its role.

2. What are chelates? Give example.

3. Give the uses of radioisotopes.

4. Write the Usanovich concept.

5. What is metallocenes? Give an example.

PART B — ($3 \times 7 = 21$ marks)

Answer any THREE questions out of Five questions in 200 words.

All questions carry equal marks.

6. Derive Born equation completely.

7. Explain Pauling's valence bond theory.

8. Discuss in details about radioactive waste disposal methods.

9. Explain pH of strong acid and weak acid solutions.

10. Write the structure and applications of metal carbonyls with examples.

PART C — ($4 \times 10 = 40$ marks)

Answer any FOUR questions out of Seven questions in 500 words.

All questions carry equal marks.

11. Write a brief note on semiconductors and superconductors.

12. Briefly explain the crystal field theory.

13. What are nuclear reactions? Explain about reactors design.

14. Explain proton donor-acceptor system in acid base chemistry.

15. Discuss in details about the mono and poly nuclear carbonyls in organometallic chemistry.

16. Write the roles of Wilkinson's and Ziegler-Natta catalysis in chemistry.

17. Briefly explain the theory of solvent systems and electron dot systems with examples.

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UG-AS-1431 BCHES-62

U.G. DEGREE EXAMINATION – JULY, 2024.

Chemistry

Sixth Semester

ORGANIC CHEMISTRY – II

Time : 3 hours Maximum marks : 70

PART A — ($3 \times 3 = 9$ marks)

Answer any THREE questions out of Five questions in 100 words.

All questions carry equal marks.

1. What is called disconnection method?

2. Define optical activity. Give its importance.

3. Write the H-bondings in organic chemistry.

4. What are oxidizing agents? Write example.

5. Define electromagnetic radiations.

PART B — ($3 \times 7 = 21$ marks)

Answer any THREE questions out of Five questions in 200 words.

All questions carry equal marks.

6. Explain synthetic equivalents.

7. Write the Erythro and Threo notations with examples.

8. Discuss in details of potential energy diagram.

9. Explain Wolf-Kishner reductions. Give its importance.

10. Explain the Woodward-Fieser rules in absorption spectroscopy.

PART C — ($4 \times 10 = 40$ marks)

Answer any FOUR questions out of Seven questions in 500 words.

All questions carry equal marks.

11. Briefly explain the linear, convergent and combinational syntheses.

12. What are enentiomers and diastereomers? Explain in details with example.

13. Discuss the conformational analysis of ethane, propane, n-butane and 1, 2-glycol.

14. What are condensation reactions? Write Aldol, Perkin condensation reactions.

15. Explain the laws of absorptions with the effect of conjugation.

16. Write the applications of UV spectroscopy.

17. Write a brief note on the role of oxidation and reductions in chemical sciences.

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UG-AS-1432 BCHES-63

U.G. DEGREE EXAMINATION – JULY, 2024.

Chemistry

Sixth Semester

PHYSICAL CHEMISTRY –II

Time : 3 hours Maximum marks : 70

PART A — ($3 \times 3 = 9$ marks)

Answer any THREE questions out of five questions in 100 words.

All questions carry equal marks.

1. What is ideal gas? Give example.

2. Write the symmetry elements. Give example.

3. Define salt bridge.

4. Give the uses of nanoparticles.

5. What is molecular spectroscopy? Give types.

PART B — ($3 \times 7 = 21$ marks)

Answer any THREE questions out of Five questions in 200 words.

All questions carry equal marks.

6. What is Carnots cycle? Explain the theory and efficiency.

7. Explain the molecular symmetry with example.

8. Write a note on fuel cells.

9. Explain the role of nanomaterials in chemical sciences.

10. Discuss in details about simple harmonic oscillator.

PART C — ($4 \times 10 = 40$ marks)

Answer any FOUR questions out of Seven questions in 500 words.

All questions carry equal marks.

11. Briefly explain the second law of thermodynamics with its importance.

12. Discuss in details about symmetry operations with point groups.

13. What is electrochemical cell? Explain with types.

14. Give the role of gold, silver, cobalt and alumina nanoparticles.

15. Briefly explain the vibrational spectra of H_2O and CO_2.

16. Briefly explain the synthesis of nanoparticles using chemical methods.

17. Write a brief note on Gibbs free energy and Helmholtz free energy.

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UG-AS-1433 BCHES-64

U.G. DEGREE EXAMINATION –
JULY, 2024.

Chemistry

Sixth Semester

ENVIRONMENTAL CHEMISTRY AND
LABORATORY HYGIENE

Time : 3 hours Maximum marks : 70

PART A — ($3 \times 3 = 9$ marks)

Answer any THREE questions out of Five questions in 100 words

All questions carry equal marks

1. Sketch the carbon cycle.

2. What is hardness? Give the WHO limits in drinking water.

3. Define coagulation.

4. What are radioactive pollutants?

5. Give the common safety methods.

PART B — ($3 \times 7 = 21$ marks)

Answer any THREE questions out of Five questions in 200 words

All questions carry equal marks

6. Explain global warming and climate change.

7. Discuss the potable and industrial water quality with standards and effects.

8. Explain the role of aeration and disinfection methods in water treatment.

9. Write the sources of radioactive pollution.

10. Discuss the first aid techniques.

PART C — ($4 \times 10 = 40$ marks)

Answer any FOUR questions out of Seven questions in 500 words

All questions carry equal marks

11. Briefly explain the classification and effects of air pollutants.

12. Write a brief note on sources and effects of water pollutants.

13. Write a note on trickling filters, RBC and anaerobic digestion.

14. Discuss in details about preventive methods of radioactive pollution.

15. Give the precautions for avoiding lab accidents.

16. Briefly explain the sources, effects and control methods of heavy metal and coliforms.

17. Discuss the role of activated carbon and ion-exchange process in water treatment.

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