Reg. No. | | | | | | | | | |

BSCCHC 381/BSCCHC 357

Choice Based Credit System/Credit Based Sixth Semester B.Sc. Degree Examination, September 2022
(2021-22 Batch Onwards/2020-21 and Earlier Batches)
CHEMISTRY (Paper – VII)

Time : 3 Hours | Max. Marks : 80

Instructions : *1) A single booklet containing **40** pages will be issued. **No** more additional sheets will be **issued**.*
*2) Write question number and subdivision **clearly**.*
*3) Write equation and diagram **wherever** necessary.*
*4) Answer Part – **A** in **first two** pages of answer book.*
*5) Scientific calculator **allowed**.*

PART – A

Answer **any ten** of the following : **(2×10=20)**

1. a) Write the structure of S_4N_4.
   b) What is vulcanization ?
   c) How is Buna-S manufactured ?
   d) State Grothus-Draper law.
   e) Mention two differences between photochemical and radiochemical reactions.
   f) What is chemiluminescence ? Give an example.
   g) What is denaturation of proteins ?
   h) What is glycosidic linkage ?
   i) Give one example each for basic and neutral amino acids.
   j) What is saponification reaction ? Give an example.
   k) Mention the physiological activities of ephedrine and atropine.
   l) What are alkaloids ? Give an example.

PART – B

Answer **any four** questions choosing **one** question from **each** Unit. **(15×4=60)**

Unit – I

2. a) Explain free radical polymerization of vinyl polymers. **4**

   b) Mention the types of matrix materials and explain any one. **4**

   c) i) Explain the structure of boron nitride. **4**

      ii) Explain the method of preparation of silicones. **3**

3. a) Explain cationic polymerization of vinyl polymers. **3**

   b) Give a method of preparation of $(NPCl_2)_3$. Explain its structure. **5**

   c) i) How is silicon carbide prepared ? Mention its uses. **4**

      ii) How are epoxy resins prepared ? Mention their applications. **3**

Unit – II

4. a) What is photosensitization reaction ? Explain with an example. **4**

   b) Explain the radiolysis of acetylene. **4**

   c) i) A gaseous sample of hydrogen iodide was irradiated by light of wavelength 254 nm. When 306J of energy was found to decompose 1.3×10^{-3} mole of HI, calculate quantum yield for the decomposition of HI. **4**

      ii) Mention the applications of radio isotopes. **3**

5. a) State and explain law of photochemical equivalence. **3**

   b) Draw Jablonsky diagram and explain different transitions. **5**

   c) i) Explain Fricke dosimeter. **4**

      ii) Discuss the synthesis of ammonia by radiolysis. **3**

Unit – III

6. a) Explain epimerization with an example. **4**

   b) How do you convert the monosaccharides into corresponding ethers and esters ? **4**

   c) i) Explain the classical method of peptide synthesis. **4**

      ii) Explain Strecker synthesis of α-amino acid. **3**

7. a) Explain Ruff's degradation with reference to glucose. **3**

   b) Explain the classifications of proteins. **5**

   c) i) How is ring size of D(+) glucose determined by methylation ? **4**

      ii) What is the action of heat on α-amino acids ? Give an example. **3**

Unit – IV

8. a) Explain HVZ reaction with mechanism. **4**

   b) How does the following react with $LiAlH_4$: (i) Acetamide (ii) Methyl acetate ? **4**

   c) i) Give the method of synthesis of nicotine. **4**

      ii) Write the structures of morphine and hygrine. **3**

9. a) Write any two reactions of acetyl chloride. **3**

   b) Explain the exhaustive methylation of alkaloids. **5**

   c) i) Explain Arndt-Eistert reaction with mechanism. **4**

      ii) Mention any three types of alkaloids based on their composition. Give one example for each class. **3**
