

SL No of QP : 13338

Unique Paper Code : 2174001005

Name of the Paper : GE- Chemistry in Indology and Physical & Mental Well Being

Name of the Course : B.Sc. (Hons)

Semester : I/III/V/VII

Duration : 3 hours

Maximum Marks: 90

Instructions for candidates

- Write your roll number on the top on receipt of this question paper.
- Answer any six questions, all questions carry equal marks.

- 1.a. Explain the concept of Body–Mind Meditation (B–M) and Loving Kindness Meditation (LKM)? (5)
 - b. How does nutrition affect brain function and mood regulation? Why is protein intake essential for muscle recovery after exercise? (5)
 - c. Discuss the contributions of South Indian ironworks in the development of Wootz Steel. (5)

(5, 5, 5 = 15)
2. a. What role does the TCA cycle play in energy metabolism? (5)
 - b. Compare direct and indirect methods of body composition analysis, mentioning their advantages and limitations. (5)
 - c. Discuss the contribution of Indian chemists to early inorganic chemistry. (5)

(5, 5, 5 = 15)
3. a. Explain the concepts of BMI and BMR, and discuss how they help in assessing an individual's nutritional and metabolic health. (5)
 - b. Discuss in detail the neurophysiological basis of various states of mind, explaining the role of brain wave patterns and neuroimaging evidence. (5)
 - c. Discuss how yogic postures, breathing, and meditation contribute to physical, physiological, and mental well-being. (5)

(5, 5, 5 = 15)
4. a.i. Define atom and molecule with suitable examples. (2.5)
 - ii. How do laws of motion help explain chemical reactions at molecular level? (2.5)
 - b. Discuss the use and purification of mercury (Parada Samskara) in Indian alchemy. (5)
 - c. Describe Newton's three laws of motion with one real-life application each. (5)

(2.5, 2.5, 5, 5 = 15)
5. a. Differentiate between dyes and pigments with examples (5)
 - b. Discuss the significance of the Delhi Iron Pillar in ancient metallurgy. (5)
 - c. Explain the process of extraction of zinc and its importance. (5)

(5, 5, 5 = 15)
6. a. Discuss the role of *Sulphur (Gandhaka)* in Indian alchemy. (5)
 - b. Describe *Govindacharya's* and *Yashodhara's* contributions to Indian chemical thought. (5)
 - c. Elaborate on the role of hydration and electrolytes in maintaining water balance during exercise. (5)

(5, 5, 5 = 15)

7. a. Discuss how ancient Indian thinkers understood energy and matter interconversion. (5)
- b. What is the role of Acharya Vagbhatta in ancient chemistry. (5)
- c. Compare the benefits of yoga with aerobic exercise in terms of cardiovascular and stress-related parameters. (5)
- (5,5,5=15)
8. a. How were cosmetics prepared from herbal and mineral sources? Give two examples. (5)
- b. How did ancient Indians understand oxidation and reduction processes? (5)
- c. Explain the role of chemical reactions in ancient Indian rituals. (5)
- (5,5,5=15)