647510 **0301219C1010** **Seat No :_____**

B.Sc. Semester - 2 (*CBCS*) Examination
June/July-2022 [OLD COURSE]
FORENSIC SCIENCE (CORE)

Time: 2:30 Hours **Marks: 70**

Instructions:

1. All questions are compulsory.
2. Figures to the right indicate marks.

Q – 1 (A) Objective type questions **(4)**

1. Define electromagnetic wave
2. Explain velocity of Wave.
3. _____Quantum numbers tells about the basic energy level and distance from the nucleolus.
4. Electromagnetic wave not required any supporting medium for propagation. True or False?

Q – 1 (B) Answer in brief (Any 1 out of 2) **(2)**

1. Which information obtained from the spectrum of substance?
2. Define wave and wavelength.

Q – 1 (C) Answer in detail (Any 1 out of 2) **(3)**

1. Describe those effects which explain the particle nature of electromagnetic radiation.
2. Types of molecular energy.

Q – 1 (D) Write a note on (Any 1 out of 2) **(5)**

1. Define spectra and explain its types.
2. Write a note on Quantum Numbers

Q – 2 (A) Objective type questions **(4)**

1. Who discovered the X-Rays?
2. Give full form of EDS
3. What is Wavelength of X-ray region?
4. Detectors used in X-Ray spectrometer

Q – 2 (B) Answer in brief (Any 1 out of 2) **(2)**

1. Use of collimator in X-ray spectrometer.
2. What is the characteristic of target of X-ray production unit?

Q – 2 (C) Answer in detail (Any 1 out of 2) **(3)**

1. Explain monochromator with figure.
2. Explain X-ray diffraction and Bragg's Law

Q – 2 (D) Write a note on (Any 1 out of 2) **(5)**

1. Instrumentation of X-ray spectrometer.
2. Production of X-Rays.

Q – 3 (A) Objective type questions **(4)**

1. _____is used as a material for prism used in the IR spectroscopy.
2. Write the Characteristics of Laser light
3. Nicrome wire lamp is used as a source in _____. IR Spectrometer
4. Wavelength of UV-Visible region.

Q – 3 (B) Answer in brief (Any 1 out of 2) **(2)**

1. Full form of LASER and give the example of them.
2. Block diagram of instrumentation of double beam UV-Spectrophotometer.

Q – 3 (C) Answer in detail (Any 1 out of 2) **(3)**

1. Write a note on chromophore.
2. Source of UV spectrometer

Q – 3 (D) Write a note on (Any 1 out of 2) **(5)**

1. Write a note on absorption and intensity shift for UV –visible spectroscopy.
2. Instrumentation of IR-spectrophoto meter

Q – 4 (A) Objective type questions **(4)**

1. Rpm means _____.
2. Define pH.
3. The range of pH of acidic solution is_____.
4. Centrifugation technique works on the basis of _____principle.

Q – 4 (B) Answer in brief (Any 1 out of 2) **(2)**

1. What is pH? And give the pH range for acidic and basic solution.
2. List out the types of centrifuge techniques.

Q – 4 (C) Answer in detail (Any 1 out of 2) **(3)**

1. Principle of centrifugation and Write a note on density gradient centrifugation
2. Write a note on types of buffer solution in short.

Q – 4 (D) Write a note on (Any 1 out of 2) **(5)**

1. List out the types of centrifuge technique and explain the differential centrifugation.
2. Write a note on pH and PH meter.

Q – 5 (A) Objective type questions **(4)**

1. The diameter of helix of DNA is _____ A^O and _____ base pairs are present in each turn of helix.
2. Which macromolecules is the main source of cellular energy?
3. Give the examples of polysaccharide.
4. Proteins are the chain of _____acids linked by _____bonds.

Q – 5 (B) Answer in brief (Any 1 out of 2) **(2)**

1. Draw the structure of amino acid.
2. What is the difference between nucleoside and nucleotide?

Q – 5 (C) Answer in detail (Any 1 out of 2) **(3)**

1. Which macromolecules are useful for genetic heredity? Give the types of it and how they differ from each other?
2. Give the classification of carbohydrates

Q – 5 (D) Write a note on (Any 1 out of 2) **(5)**

1. Write a note on Lipid
2. Write a note on DNA.

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