647510 0301219C1010 Seat No: _____

B.Sc. Semester - 2 (CBCS) Examination
March/April- 2018
FORENSIC SCIENCE
(CORE: Forensics, crime and investigative technique)

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.In Raman spectra, the lines to the left of Rayleigh peak and having lower value of wave no. are called as _____.
2.Types of wave
3.Define: Spectroscopy
4.Photoelectric effect explained by which nature of E.M Radiation?

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

1. Define spectra and give its types.
2. Why the color of sky is Blue? Explain.

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. Explain scattering.

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

1. Write a note on Quantum Numbers.
2. Explain molecular spectra and molecular energy.

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

1. List out the methods of x-ray techniques.
2. Wavelength of X-ray region
3. Who discovered the X-Rays?
4. Bragg's Equation.

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

1. Full form of EDS and WDS and give the difference between them.
2. Detectors of x-ray spectrometer.

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

1. Explain monochromator with figure.
2. Explain the Auger effects.

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

1. Explain X-ray diffraction and Bragg's Law
2. Production of X-Rays.

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

1. Wavelength of UV visible region.
2. Bolometers used as detector in_____spectroscopy.
3. Nicrome wire lamp is used as a source in _____.
4. Write the Characteristics of Laser light .

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

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

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

1. Source of IR spectrometer.
2. Why deviation occurs from beer's law in UV-Visible spectroscopy?

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

1. Detectors of IR Spectrometer.
2. Explain Helium-Neon Laser.

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

1. What is pH? .
2. Centrifugation technique works on the basis of _____principle.
3. The range of pH of acidic solution is_____.
4. In pure water at 22^{O} C the concentration of H_3O^+ ions is _____.

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

1. What is centrifugation? On which principle it works?
2. Use of buffer solution.

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

1. Write down the importance of buffer solution.
2. Principle of centrifugation and Write a note on density gradient centrifugation

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

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

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. example of polysaccharide.
3. _____are the purine base
4. Types of DNA

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

1. What is the difference between nucleoside and nucleotide?
2. Give some example of source of carbohydrates

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

1. Write a note on RNA and its type.
2. What is central dogma?

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

1. Draw the structure of amino acid and give the example of it. And discuss the electric charge of proteins and isoelectric point.
2. Write a note on Lipid

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