

B.Sc. Semester - 3 (CBCS) Examination
Nov/Dec. -2021 [NEW COURSE]
Forensic Science-FS301 (Core)

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

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

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- Q-1 Give the answer of following question. (14)**
- (A) Answer the following question very shortly (04)
- (1) What is the range of IR region?
 - (2) Explain homo nuclear diatomic molecules?
 - (3) MCT stands for _____.
 - (4) Name the detectors used in Raman spectroscopy.
- (B) Answer the following question in brief (Any one) (03)
- (1) Draw a labeled diagram of IR instrumentation and write their names?
 - (2) What is Raman scattering? Define stock line & anti-stock lines with graph.
- (C) Answer the following question in detail (Any one) (07)
- (1) Explain theory of IR spectroscopy. Write about degree of freedom for linear and non-linear molecules ?
 - (2) Write a note on FTIR spectroscopy with its application?
- Q-2 Give the answer of following question. (14)**
- (A) Answer the following question very shortly (04)
- (1) Define Genetics.
 - (2) What is amount of Nitrogen bases as per governed by Chargaff's rule.
 - (3) Give the phenotype and genotypes of monohybrid chromosomes.
 - (4) Chromosomes contains _____.
- (B) Answer the following question in brief (Any one) (03)
- (1) Write a note on RNA ?
 - (2) Define Genetics and explain law of purity of Gemetes?
- (C) Answer the following question in detail (Any one) (07)
- (1) Describe Mendel's law?
 - (2) Write note on DNA replication process?
- Q-3 Give the answer of following question. (14)**
- (A) Answer the following question very shortly (04)
- (1) Define: Immune system
 - (2) What is antibody?
 - (3) Write the types of immunoglobulins?
 - (4) Write the name of cells that involved in the production of antibodies?
- (B) Answer the following question in brief (Any one) (03)
- (1) Explain the unique feature of adaptive immunity?
 - (2) Explain the general function of immunoglobulins?
- (C) Answer the following question in detail. (Any one) (07)
- (1) Write a note on:
 - Define: Antigen-Antibody reaction.
 - Explains the production of Antibodies.
 - (2) Explain briefly about innate immunity?

- Q-4 Give the answer of following question. (14)**
- (A) Answer the following question very shortly (04)
- (1) Paper Chromatography was first developed by_____.
 - (2) Give the formula of Retention factor.
 - (3) Give the types of Chromatography.
 - (4) SDS-PAGE stands for _____.
- (B) Answer the following question in brief (Any one) (03)
- (1) Explain Flame Photometric detectors & Thermal conductivity detectors?
 - (2) Explain the types of paper chromatography?
- (C) Answer the following question in detail. (Any one) (07)
- (1) Describe gel electrophoresis with its component?
 - (2) Explain HPLC in detail with labeled diagram.
- Q-5 Give the answer of following question. (14)**
- (A) Answer the following question very shortly (04)
- (1) Write the formula for hair index.
 - (2) Write the microscope used in the instrumental analysis of fiber?
 - (3) Cell wall of diatoms is made of _____.
 - (4) Write the example of secreted and excreted body fluids?
- (B) Answer the following question in brief (Any one) (03)
- (1) Write the difference between human hair and animal hair ?
 - (2) Write the function of saliva?
- (C) Answer the following question in detail. (Any one) (07)
- (1) Write a short note on -
 - (i) What is Diatoms?
 - (ii) Draw the labeled diagram of diatoms and its function?
 - (2) Write a note on body fluid: Urine
