



PBD-003-001328 Seat No. _____

B. Sc. (Forensic Science) (Sem. III) (CBCS) Examination

November / December - 2018

**FS - 301 : Basic Concepts & Principles of
Physical, Chemical & Biological Analysis
Technique - I**

Faculty Code : 003

Subject Code : 001328

Time : $2\frac{1}{2}$ Hours]

[Total Marks : 70

- Instructions :** (1) This question paper contains three questions. All are compulsory.
(2) Draw neat and labeled diagrams wherever necessary.
(3) Figures to the right indicate marks.

1 Give the answer of following question : **20**

- (1) Microprocessor used in the first generation computers. True or False?
- (2) Which is volatile memory? Give its abbreviation.
- (3) Abbreviate the TLD.
- (4) In www.yahoo.com link which is the top level domain name?
- (5) Define cracker.
- (6) Define electrophoretic mobility.
- (7) Give the full name of PAGE.
- (8) Which solvent system commonly used for chromatography of Ink?
- (9) Who introduced the chromatography technique?
- (10) Define immunology.
- (11) Give the Wavelength range of UV-Visible region.
- (12) $\pi \rightarrow \pi^*$ transition required more energy than $\sigma \rightarrow \sigma^*$ transition True or False?

- (13) Define Chromophore.
- (14) Define Allergy.
- (15) Linear CO_2 molecule will have _____ degree of freedom.
- (16) Which material used in the composition of the rod of Globar lamp?
- (17) Give the name of thermal transducers used as detector in IR-spectroscopy.
- (18) Give the full name of FTIR.
- (19) Give the name of cells of immune system.
- (20) Which material is used in sampling handing devices in Raman spectroscopy?

- 2** Give answer of following questions : **25**
- (a) Write any **three** out of six. **6**
- (1) Forensic application of IR spectroscopy.
 - (2) Write the example of input devices.
 - (3) Give the example of staining material in electrophoresis.
 - (4) Define the chromatography and explain the word chromatography.
 - (5) Which precaution should be taken while handling the TLC plate during chromatography?
 - (6) Difference between isocratic and gradient elution technique.
- (b) Write any **three** out of six : **9**
- (1) Describe the production of antibodies.
 - (2) Give the polymorphism of DNA.
 - (3) Give the procedure for the development of paper chromatograph.
 - (4) Detection method used in TLC.
 - (5) Describe the types of injector in HPLC.
 - (6) Describe the cell of immune system.
- (c) Write any **two** out of six : **10**
- (1) Write a note on low voltage paper electrophoresis.
 - (2) Explain antigen-antibody reaction.

- (3) Explain types of immunity.
- (4) Describe the instrumentation of column chromatography.
- (5) Write a note on Components of paper chromatography.
- (6) Describe the quantitative analysis of substance in GC.

3 Give answer of following questions : **25**

(a) Write any **three** out of six : **6**

- (1) Who introduced Raman Effect ? What is Raman Effect?
- (2) Define antibody and give its example.
- (3) Classify the acquired immune system.
- (4) What is the helper T-cell and suppresser T-cell?
- (5) Gives the structure
 - (i) Adenine
 - (ii) Cytosine
- (6) Explain the initiation process in DNA replication.

(b) Write any **three** out of six : **9**

- (1) Write a note on Absorption and intensity shift observed in UV spectroscopy.
- (2) Describe Monochromator.
- (3) Instrumentation of FTIR.
- (4) Write a note on memory of computer.
- (5) What is input, output and storage device in language of computer and give the examples of each.
- (6) Write a note on poly acryl amide gel electrophoresis.

(c) Write any **two** out of five : **10**

- (1) Theory of Raman spectroscopy.
- (2) Write a note on detectors used in IR spectroscopy.
- (3) Generation of computers.
- (4) Write a note on internet and E-mail.
- (5) Write a note on Gel electrophoresis.