



**DL-003-001428**

Seat No. \_\_\_\_\_

**B. Sc. (Sem. IV) (CBCS) Examination**

**April / May – 2015**

**Forensic Sciences : Paper - F-401**

*(Basic concepts & Principles of Physical,  
Chemical & Biological Analytical Techniques - II)*

**Faculty Code : 003**

**Subject Code : 001428**

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) Figure to the right indicate marks.

**1 Answer the following MCQ questions : 20**

(1) Conversion of solid to gaseous atomic state is called

\_\_\_\_\_

- (a) Absorption                      (b) Emission  
(c) Atomization                      (d) Fluorescence

(2) HCL stands for \_\_\_\_\_

- (a) Hindustan Company Ltd.  
(b) Hollow cathode lamp  
(c) Hydrogen carbon lamp  
(d) Helium carbon lamp

- (3) Difference in frequency when an object is moving towards and away from the subject is \_\_\_\_\_
- (a) Pressure effect      (b) Doppler effect
- (c) Optical train      (d) Nebulizing
- (4) Function of nebulizer is \_\_\_\_\_
- (a) Produce aerosol
- (b) Produce air
- (c) Produce gases
- (d) Produce solids
- (5) Which of these is not a background correction?
- (a) Deuterium arc      (b) Zeeman correction
- (c) Ionization      (d) Smith Hietge correction
- (6) Thermogravimetric balances are developed by
- (a) Chevenard and Duval
- (b) Max Planc
- (c) Einestien
- (d) Robert Hook
- (7) Difference in temperature between substance and reference material is measured in \_\_\_\_\_
- (a) TGA      (b) DSC
- (c) DTA      (d) Isochoric method

- (8) NMR stands for \_\_\_\_\_
- (a) Nuclear magnetic resistance
  - (b) Nuclear magnetic remittance
  - (c) Nuclear magnetic resolution
  - (d) Nuclear magnetic resonance
- (9) The heavy metals can be easily detected by \_\_\_\_\_.
- (a) UV
  - (b) Electrophoresis
  - (c) HPLC
  - (d) AAS
- (10) Ligases are also known as \_\_\_\_\_
- (a) Hydrolases
  - (b) Synthetases
  - (c) Oxido reductases
  - (d) Lyases
- (11) What is the action of enzyme on activation energy?
- (a) Increase
  - (b) Decrease
  - (c) Remain constant
  - (d) No change
- (12) The non protein part of conjugated protein is called as \_\_\_\_\_
- (a) Co —protein
  - (b) Apozyme
  - (c) Prosthetic group
  - (d) None of the above

(13) Who devised a method for producing monoclonal antibodies ?

- (a) Kohler and Milstein
- (b) Ouchterlony
- (c) Oudin
- (d) Merrack

(14) Foreign particles which attack our body are known as \_\_\_\_\_

- (a) Interferon
- (b) Antigen
- (c) Antibody
- (d) Epigen

(15) The standard density of diesel at 15° C is \_\_\_\_\_

- (a) 710-770 Kg/cube m
- (b) 780-810 Kg/cube m
- (c) 820-870 Kg/cube m
- (d) 880-910 Kg/cube m

(16) In acid alkali test which color indicate positive test for phenolphthalein ?

- (a) Pink
- (b) Red
- (c) Blue
- (d) Yellow

(17) Which type of arsonists are teenagers?

- (a) Pyromaniacs
- (b) Revenge
- (c) Vandalism
- (d) None

(18) Copy prepared by superimposing the document is \_\_\_\_\_

- (a) Simulated forgery (b) Traced forgery  
(c) Freehand forgery (d) Asymmetrical

(19) Currency note is made up of \_\_\_\_\_

- (a) Silk (b) Wool  
(c) Rayon (d) Cotton

(20) In how many languages the denomination in a currency note written?

- (a) 10 (b) 2  
(c) 15 (d) 18

**2** Give the answer of following question :

(a) Give the answer shortly : (any three)

**6**

- (1) Define and describe atomization.  
(2) Write 4 applications of AAS  
(3) Classify Enzymes  
(4) Give the full form of : - RIA and ELISA  
(5) Define:- Smoke point and pour point  
(6) What is simulated and guided hand forgery?

(b) Give the answer of any three out of six :

**9**

- (1) Write a note on Line source (with diagram)  
(2) Give the types of interferences in AAS.

- (3) Classify the various methods related to thermal analysis.
- (4) Give the instrumentation of continuous wave NMR
- (5) Write a note on immobilized enzyme.
- (6) Give precipitin reaction.

(c) Give the answer of following questions in detail : **10**

(any Two)

- (1) Write a note on background correction in AAS
- (2) Write the working procedure of DSC
- (3) Give the general principles and properties of Antigen –antibody.
- (4) Write a note on complement fixation
- (5) What are enzyme assay techniques?

**3** Give the answer of following question :

(a) Give the answer shortly : (any three) **6**

- (1) What is the use of monochromator?
- (2) List the instrumentation of TGA
- (3) Describe two factors affecting the enzyme activity.
- (4) Write a note on immunofluorescence.
- (5) Give the examination procedure of phenolphthalein.
- (6) Give the section and definition of document legally.

(b) Give the answer of any three out of six: **9**

- (1) Write a note on chemistry of fire.
- (2) Describe test methods for petrol.
- (3) Give the class characteristics of handwriting.
- (4) Classify fire.
- (5) Explain precipitin reaction
- (6) Give the description of immunological reaction "RIA".

(c) Give the answer of following questions in detail : **10**

(any Two)

- (1) Give the security features of currency note.
- (2) Write a note on Arsonists.
- (3) Write a note on immunoglobulins with their importance
- (4) Describe Mechaleis-Menton reaction.
- (5) Give the working principle of Fourier transform NMR.

---