



HCN-003-001548

Seat No. _____

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

October - 2017

FS - 503 : Forensic Physics

Faculty Code : 003

Subject Code : 001548

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

[Total Marks : 70

Instructions :

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

1 Give the answers of following questions - one mark : **20**

- (1) Define physical properties.
- (2) Which physical properties are examined for the analysis of glass ?
- (3) When a temperature of liquid is raised its refractive index decreases. True or False ?
- (4) The 3-R rule is related with glass. True or False ?
- (5) Define soil.
- (6) The ultimate value of soil as evidence is dependent on its variation at the crime scene. Is it true or not ?
- (7) Which information is obtained from the gait pattern ?
- (8) Types of toolmarks.
- (9) Give the full form of EER, which relates to spectrogram of speech.
- (10) What are class characteristics ?
- (11) Which physical characteristic of glass is measured with the help of hot stage Microscope.

- (12) The information molded into the side wall of one company made tire is "DOT YPY L9 AC 4901". In this what do you understand by means of "DOT" ?
- (13) Fry's reagent is used as etchant for which surface ?
- (14) Define Text dependent speaker analysis.
- (15) Define Density.
- (16) Instrument used in forensic physics division.
- (17) What is Aspect Ratio ?
- (18) Which material is used as Fixative agent in POP casting ?
- (19) In forensic speaker recognition for speaker verification the ratio of compared with the voice sample is _____.
- (20) Types of fiber on the basis of their origin.

2 Give the answers of following questions as per instruction :

- (a) Write any three out of six : **6**
 - (1) Define refractive index and which instruments are used to measure the refractive index of glass ?
 - (2) Spectrographic and chromatographic methods used in elemental analysis of soil.
 - (3) Information obtained from the foot or shoe impression.
 - (4) Give the types of skid marks.
 - (5) Give the types of adhesive material on the basis of their raw material.
 - (6) Define sound, voice and speech.
- (b) Write any three out of six : **9**
 - (1) Manufacturing, composition and use of soda lime and borosilicate glass.
 - (2) What is soil for forensic scientist ? What are its major components and how it is formed ?
 - (3) Write a note on crime scene photography.

- (4) Different methods used for collection of foot impression.
- (5) Write a note on soil profile.
- (6) Which information is obtained from the speech sample? Define open test, close test and discrimination test?

(c) Write any two out of five : 10

- (1) Write a note on glass fractures.
- (2) If you are forensic scientist and you have obtained a soil as an evidence on crime scene which steps you will follow from crime scene to analysis of that soil?
- (3) Discuss the photographic materials which are used to make photographic film.
- (4) Define fiber and describe forensic examination of fiber.
- (5) Describe principle of tool mark examination and types of tool marks.

3 Give the answers of following questions as per instructions :

(a) Write any three out of six : 6

- (1) Different methods to measure the density of glass.
- (2) Ignition test for soil.
- (3) Which information is obtained from side wall of tire?
- (4) Different light source used in crime scene photography.
- (5) What is the difference between forensic speaker verification and speaker identification?
- (6) What is the difference between class and individual characteristics of tool marks; explain with example.

(b) Write any three out of six : 9

- (1) Why elemental analysis of glass is necessary? How we can dissolve the glass before elemental analysis? Mention the names of analytical techniques which are used for elemental analysis of glass.

- (2) Explain Density gradient method for soil.
 - (3) Give the name of casting material and describe the process of casting.
 - (4) Methods used for the Examination of tool marks.
 - (5) Write a note on gait pattern.
 - (6) Forensic examination of counterfeit coins.
- (c) Write any two out of five : **10**
- (1) Explain the types of glass in detail.
 - (2) Classification of fiber and its forensic examination.
 - (3) Describe the speech production in human beings.
 - (4) Is voice biometrics or not ? Why ? Write a note on challenged faced by expert during forensic speaker recognition.
 - (5) Write a note on types of camera and lenses.
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