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(16) SC

SARDAR PATEL UNIVERSITY

M. Sc. (Forensic Science) – First Semester Examination (CBCS)

Thursday, 2nd November, 2017

10:00 a.m. to 1:00 p.m.

PS01CFSC21: General Forensic Science

Total Marks: 70

Note: (1) Figures to the right indicate marks.
(2) Draw a neat and labeled diagram, wherever necessary.

Q. 1 Choose the most appropriate answer from the four alternatives given: [08]

i. **Sir Arther Conan Doyle was a_____.**

a) Lawyer b) Prolific writer c) Police d) Professor

ii. **_____ is the father of forensic toxicology.**

a) Edmond Locard b) Mathieu Orfila c) Calvin Godard d) Albert Osborn

iii. **Which one of the following is not used for sketching at crime scene?**

a) Polar method b) Tri angular method

c) Coordinate method d) Cross hatch method

iv. **Leone Lattes discovered a simple system of _____.**

a) Blood test b) DNA test c) Urine test d) Blood grouping

v. **The legal term "Mentally ill person" used in _____.**

a) Mental deficiency act b) Mental health act

c) Mental human health act d) Human health act

vi. **_____ is not a part of crime scene documentation.**

a) Videography b) Note taking

c) Photography d) Searching of evidences

vii. **_____ are not only exposure controls but also motion controls.**

a) Shutter b) Shutter speeds c) Exposure d) Aperture

viii. **Which of the following components are used as a developing agent in photography?**

a) Hydroquinone b) N-methyl para-aminophenol

c) Both (a) and (b) d) Gelatin

Q.2 Answer any SEVEN from the following: [14]

i. Enlist the basic principles of forensic science.

ii. Differentiate between criminal court and civil court.

iii. Write types of crime scene.

iv. Explain causes of crime.

v. Write in brief on securing crime spot.

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vi. What is forensic hypnosis?

vii. Define impulse and give its types.

viii. What is photogrammetry? Write its advantages.

ix. Give the full names of CCD and CMOS in terms of photography.

Q.3(a) Discuss the development of Forensic science in India. [6]

(b) Describe various crime laboratory units. [6]

OR

(b) Write short notes on the following:

1. Central bureau of investigation [3]

2. Role of police at crime scene [3]

Q.4(a) What are the limitations of crime scene investigations? [6]

(b) Discuss crime scene management documentation. [6]

OR

(b) Explain preservation of physical evidence at crime scene. [6]

Q.5(a) Describe brain fingerprinting. [6]

(b) Explain how polygraphy is useful in lie detection? [6]

OR

(b) Write short notes on the following:

1. Hallucination [3]

2. Delusion [3]

Q.6(a) Discuss forensic digital photography. [6]

(b) Enlist and explain cardinal rules for crime scene photography. [6]

OR

(b) Explain different types of cameras for crime scene photography. [6]

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SARDAR PATEL UNIVERSITY

M.Sc. (Forensic Science) Semester-I, Examination

Monday, 6th November-2017

PS01CFSC22: Instrumental Methods-Physical

Time: 10:00am-01:00 pm **Total Marks: 70**

Note- Answer of all the questions (including multiple choice questions) should be written in the provided answer book only.

Instructions:

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

Q-1 Multiple Choice Questions: **(08)**

1. In which region of the electromagnetic spectrum does an absorption at 182 nm come.....?
   (A) Vacuum-UV (B) UV
   (C)Visible (D) IR

2. Fingerprint region in IR spectroscopy is .....
   (A) 1432 to 910 cm^{-1} (B) 12500 to 8400 cm^{-1}
   (C) 1423 to 190 cm^{-1} (D) 8400 to 4000 cm^{-1}

3. Homonuclear diatomic molecule can be analyzed in.....
   (A) Raman Spectroscopy (B) IR Spectroscopy
   (C) FT-IR Spectroscopy (D) X-Ray Diffractions

4. What is a chromophore?
   (A) A group of atoms in a coloured compound.
   (B) A group of atoms in a compound responsible for the absorption of EMR.
   (C) A group of atoms in a compound responsible for electromagnetic radiation.
   (D) A coloured compound.

5. Echelle Monochromator is used in..
   (A) Atomic absorption Spectrometry (B) Atomic emission Spectrometry
   (C) IR Spectrometry (D) UV-VIS Spectroscopy

6. ω0ω0 is called as...
   (A) Larmor frequency (B) Radiation frequency
   (C)Non-Larmor Frequency (D) Frequency

7. NAA stands for...
   (A) Neutron Activation Analysis (B) Nuclear Activation Analysis
   (C) Neuron Activation Analysis (D) None of above

8. X-ray Diffraction methods is based on....
(A) Absorption of X-rays to crystal (B) Scattering of X-ray by crystal
(C) (A) and (B) both (D) None of the above

Q-2 Answer in Brief: (Attempt any Seven) **(14)**

1) Explain the types of spectra.
2) What is the relation between frequency, velocity, wave length and wave number?
3) State Beer Lamberts law.
4) What is Bathochromic effect?
5) Give an account on Atomic absorption Spectrometry.
6) Write down the comparison of ICP vs. AAS methods.
7) Write a note on Differential Scanning Colorimetry.
8) Define X-ray Absorption and Fluorescence methods.
9) Give the applications of UV-Visible, Raman Spectroscopy in Forensic Science.

Q-3(A) Define Spectroscopy and Write a note on EMR. **(06)**
(B) Explain the types of vibration occur in IR Spectroscopy. **(06)**

OR

(B) Explain Energy Dispersive X-ray analysis. **(06)**

Q-4 (A) Give a note on comparison of Luminescence & UV-Vis Absorption methods. **(06)**
(B) Describe UV-Visible spectroscopy, give its instrumentation. **(06)**

OR

(B) Write a note on FTIR. **(06)**

Q-5 (A) Write a note on: NMR. **(06)**
(B) Explain ICP-AES and its application. **(06)**

OR

(B) Explain Atomic absorption Spectroscopy and its application in Forensic Science. **(06)**

Q-6 (A) Explain Auger emission Spectroscopy. **(06)**
(B) Describe the Bragg law. Discuss the application of X-ray diffraction spectroscopy **(06)**

OR

(B) How Raman spectroscopy is different from infrared spectroscopy. **(06)**

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SARDAR PATEL UNIVERSITY

M.Sc. Forensic Science, First Semester Examination

Wednesday, 8 November 2017

10:00 A.M to 1:00 P.M

PS01CFSC23: Instrumental Methods- Biological

Total Marks: 70

Note: (1) Figures to the right indicate marks.
(2) Draw a neat and labeled diagram, wherever necessary.

Q. 1 Choose the most appropriate answer from the four alternatives given: [8]

(1) A pH measurement system consists of following parts:
(a) pH measuring electrode (b) reference electrode, (c) high input meter (d) all of the above

(2) If lenses are shaped like convex they converge the rays of light usually to create a :
(a) virtual image (b) real image (c) a and b both (d) none of the above

(3) Rocket electrophoresis is a type of :
(a) One dimensional double electroimmunodiffusion
(b) One dimensional single electroimmunodiffusion
(c) Two dimensional single electroimmunodiffusion
(d) all of the above

(4) In radioactive binging technique The amount of antigen-antibody complex formed is:
(a) proportional to the degree of antibody (b) proportional to the degree of radioactivity (c) proportional to the degree of antigen (d) none of the above

(5) In Zonal Development the analytes in the sample are separated on the basis of
(a) their distribution coefficients between stationary and mobile phase (b) their affinity for the mobile phase (c) their affinity for the stationary phase (d) all of the above

(6) The migration of charged particles through a solution under the influence of external field is called .....
(a) Electrophoresis (b) Electrocution
(c) Conductance (d) Electric current

(7) Mass spectrum is a plot of Relative abundance against the ratio of ..... .
(a) Mass/Proton (b) Mass/Charge
(c) Mass/Density (d) Density/Mass

(8) Which of the following is gas phase ionization method..... .
(a) Field desorption (b) Fast atom bombardment
(c) Electron impact ionization (d) Laser desorption

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Q.2 **Answer any SEVEN from the following:** [14]

(1) Define pH and Buffer
(2) What are SEM and TEM?
(3) Write basic principle for centrifugation
(4) Define Gene manipulation
(5) Define sensitivity.
(6) Write down the principle for thin layer chromatography .
(7) Write principle of sandwich ELISA in brief.
(8) Explain fast atom bombardment method
(9) Explain laser desorption

Q.3(a) Write principle working and applications of phase contract microscopy in brief. [6]
(b) Write detail account types of centrifuge rotors. [6]

OR

(b) Write note on sub cellular fractionation. [6]

Q.4 (a) Enlist types of Antigen –antibody reactions. Write detail account on precipitation reactions. [6]
(b) Write detail not on ELISA [6]

OR

(b) Write a note on "Nick Translation". [6]

Q.5 (a) Discuss principle of paper chromatography and explain its types in detail. [6]
(b) Enlist detectors used in HPLC. Explain any two in detail. [6]

OR

(b) Explain principle of electrophoresis. Write brief note on different support media used for electrophoresis. [6]

Q.6 (a) Explain working of mass spectrometry in detail with diagram [6]
(b) Enlist various types of ionization methods and explain any two in detail. [6]

OR

(b) Explain Tandem mass spectrometry with its applications [6]

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Sardar Patel University
M.Sc. [Forensic Science] 1st Semester
Friday : 10th November 2017
10:00 A.M to 01:00 P.M.
PSO1EFSC22- Computer Forensic

Total Marks : [70]

Q-1. Muitiple Choice Questions. **[8]**

1. RAM stands for _____
   a) Random Access Memory
   b) Read Anytime Memory
   c) Rapid Access Memory
   d) Remember All Memory

2. _____ is a Input Device
   a) Processor
   b) Keyboard
   c) Monitor
   d) HDD

3. As per IT Act, Cyber Terrorism falls under Sec._____
   a) 66E
   b) 66F
   c) 65A
   d) 61A

4. OSI stands for _____
   a) Open Systems Interconnection
   b) Open Source Information
   c) Open Source Interconnection
   d) Open System Information

5. A _____ network enables people to communicate and access applications and information without wires.
   a) Wireless
   b) Wired
   c) Computer
   d) None of the above

6. _____ is the process of encoding messages or information in such a way that only authorized parties can read it.
   a) Digital Signature
   b) Digital Certificate
   c) Encryption
   d) None of the above.

7. Online Shopping is an example of _____ Commerce
   a) Electronic
   b) Manual
   c) Business
   d) All of the above.

8. _____ Customer deals directly with the organization.
   a) B2C
   b) B2B
   c) C2C
   d) None of the above

[P.T.O]

Q-2. **Short Question. (Write Any Seven)** [14]

1 What is a Computer?
2 Explain RAM & ROM.
3 List out 5 Input devices.
4 What is Network?
5 Explain Cyber Crime.
6 What is Wireless Networks? List out Types of Wireless Networks
7 What is computer security?
8 What is E-Commerce?
9 What is Online Shopping?

Q-3. [A] Explain the types of Storage Unit in detail. [6]
[B] Explain DOS and Windows. [6]

OR

Q-3. [A] Explain the Input Unit [6]
[B] Explain the Output Unit. [6]

Q-4. [A] Explain Bus Topology in Detail [6]
[B] What is Topology? Explain Ring Topology in detail. [6]

OR

Q-4. [A] Explain HTTP in detail. [6]
[B] What is OSI Model? Explain any two layers in short. [6]

Q-5. [A] Explain about Digital Certificates. [6]
[B] Explain about Digital Signature. [6]

OR

Q-5. [A] Explain the Tools and Techniques used in Cyber Security in detail. [6]
[B] Explain the types of Wireless Networks. [6]

Q-6 [A] What is E-Commerce? Explain in detail. [6]
[B] List out the advantages and disadvantages of E-Commerce. [6]

OR

Q-6 [A] Explain M-Commerce in detail. [6]
[B] Explain the Online Shopping in detail. [6]

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