

SCIENTIFIC ASSISTANT - FORENSIC SCIENCE

1. Match List-I with List-II and select your answer using the codes given below.

List - I	List - II
a. Near IR	1. 200 - 10 cm^{-1}
b. Mid IR	2. 4000 - 200 cm^{-1}
c. Far IR	3. 13000 - 4000 cm^{-1}
d. Visible range	4. 4000 - 7600 \AA

	a	b	c	d
A.	3	2	1	4
B.	2	3	4	1
C.	4	3	2	1
D.	1	2	3	4

2. "Inductively coupled plasma optical Emission Spectroscopy" can be used to :

- 1) Measure the concentrations of as many as 70 elements simultaneously
 2) Determine one element at a time
 3) Measure the concentrations of all elements in the periodic table
 4) Measure the concentrations of only 10 elements in the periodic table

3. The Coumarin derivatives causes the deficiency of :

- 1) Vitamin C
 2) Vitamin A
 3) Vitamin K
 4) Vitamin D

4. Heroin gets rapidly degenerated to :

- 1) 4-Monoacetyl morphine
 2) 6-Monoacetyl morphine
 3) Diacetyl morphine
 4) 2-Monoacetyl morphine

5. Amphetamines are :

- 1) Depressants
 2) Stimulants
 3) Convulsants
 4) Hallucinogens

6. In Wilson's disease, the metal present in large quantity is :

- 1) Lead
 2) Copper
 3) Aluminium
 4) Arsenic

7. One of the most important constituents to characterize Gin is :

- 1) Juniper berries
 2) Hops resin
 3) Fusel oil
 4) 90% Ethanol

8. Tequila is obtained by distillation of fermented juice of :

- 1) Barley
 2) Agave
 3) Potato
 4) Oats

9. Methyl isocyanate is classified as :

- 1) Agrochemical
 2) War gas
 3) Irritant
 4) All the above

10. Magnan's symptom occurs due to :

- 1) Heroin addiction
 2) Ganja addiction
 3) Cocaine addiction
 4) Pethidine addiction

11. Lindane is :

- 1) Carbonate
 2) Organochlorine pesticide
 3) Organophosphorus pesticide
 4) Fungicide

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12. Phenobarb is basically a/an :

- 1) Intermediate acting barbiturate
- 2) Long acting barbiturate
- 3) Short acting barbiturate
- 4) Ultra-short acting barbiturate

13. _____ is a derivative of opium alkaloids.

- 1) Morphine
- 2) Papavevine
- 3) Heroin
- 4) Codeine

14. Flame photometry is the best instrument for quantitative determination of :

- 1) Nitrogen
- 2) Calcium
- 3) Hydrogen
- 4) Sulphur

15. "Inductively coupled plasma atomic Spectrometry" is a sensitive instrument even to determine :

- 1) 10 parts per million
- 2) 10 parts per billion
- 3) 10 parts only
- 4) 10 parts per trillion

16. Serum copper level can be analysed by the following method:

- 1) Titration
- 2) Atomic absorption spectrometry
- 3) Conductivity
- 4) Differential Thermal analysis

17. X-ray diffraction instrument is mostly used for :

- 1) Determining wavelength
- 2) Determining the atomic arrangement in crystalline solid
- 3) Determine the frequency
- 4) Determine the length

18. The basic powder diffraction system consists of :

- 1) X ray source
- 2) Two circle goniometers
- 3) Sample state detector with computer control and data analyzer
- 4) All the above

19. Colourimetry is concerned with the determination of a concentration of a substance by :

- 1) Measurement of relative absorption of light with respect to known concentration of solution
- 2) Measurement of relative time with respect to known concentration of solution
- 3) Measurement of relative distance with respect to known concentration of solution
- 4) Measurement of relative weight with respect to known concentration of solution

20. Neutron activation analysis allows determination of elements with :

- 1) Almost no sample preparation
- 2) Sample preparation
- 3) Samples must be destroyed
- 4) Samples should be disintegrated

21. What is the first step to be followed in focussing of an object in macro photography?

- 1) Moving the camera or object to bring the object into sharp focus
- 2) The lens to film distance is adjusted to obtain desired degree of magnification
- 3) The depth of field is adjusted for optimum
- 4) None of the above

22. What are the primary colours?

- 1) Red, Green and Yellow
- 2) Red, Green and Blue
- 3) Cyan, Blue and Magenta
- 4) Blue, Yellow and Green

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23. While examining and photographing documents by short UV radiations the documents should not be placed under glass. The reason may be : (i) Reduces amount of fluorescence (ii) Increases amount of fluorescence (iii) Absorbs the fluorescence (iv) Glass itself may fluoresce
- 1) (i) and (ii) are correct
2) (i), (ii) and (iii) are correct
3) (ii), (iii) and (iv) are correct
4) (i), (iii) and (iv) are correct
24. An envelope containing a letter in a half sheet of paper was received in a kidnapping case. The I.O decided to know the contents of the envelope before opening. Suggest a suitable method.
- 1) Photographing using transmitted UV radiation
2) Photographing using reflected IR radiation
3) Photographing using transmitted IR radiation
4) All the above
25. Suggest a suitable method to photograph finger impressions on steering wheel :
- 1) Vertical illumination
2) Photograph with the aid of mirror
3) Ultraviolet photography
4) All the above
26. Panchromatic films is sensitive to :
- 1) Ultra-violet region of the spectrum
2) Blue region of the spectrum
3) Red region of the spectrum
4) All the above
27. What is/are the factor/s which affect the light focussing on the film?
- 1) Lens setting
2) Shutter setting
3) Guide number
4) All the above
28. In a badly decomposed body, it was observed that a tattoo marks were seen on the body. State which method of photography will be more useful for future study.
- 1) Transmitted light photography
2) Oblique light photography
3) Reflected infrared photography
4) None of these
29. In a rifled firearm shoot out incident, clothing of the victim was recovered to observe invisible powder pattern. Find the useful method to photograph the same.
- 1) Ultra violet photography
2) Visible photography
3) Infra-red photography
4) All of these
30. "3-R" rule states that :
- 1) Radial cracks form at right hand side on the reverse side
2) Radial cracks form at right angle on the reverse side
3) Radial cracks form at right angle on the rough side
4) None of these
31. Examination of glass as evidence material in crime detection can be done using :
- 1) The refractive index and density as parameters
2) Chemical methods to determine its elemental signature
3) Physical match such as its colour and fragment pattern
4) All of these

32. The two most useful physical properties of glass for forensic comparisons are

- 1) Density and refractive index
- 2) Elasticity and plasticity
- 3) Brittleness and Hardness
- 4) None of these

33. While determining the refractive index of a glass fragment through "immersion method", the match point refers to :

- 1) The disappearance of Beckeline when the liquid medium and the glass fragment have similar refractive indices
- 2) The appearance of Beckeline around the margins of glass fragment that is immersed in a liquid of a different refractive index
- 3) The disappearance of Beckeline when the liquid medium and the glass fragment have similar density
- 4) The point wherein the density of the liquid medium and the glass fragment is considered equal.

34. Any questions regarding whether or not an automobile's headlights were on or off before the impact, may be resolved by examining the :

- 1) Fractured headlight cover glass
- 2) Headlight filaments
- 3) Reflector shell of the head lamp
- 4) All the above

35. The radiating lines in a fractured window glass are approximately known as :

- 1) Radial fracture
- 2) Concentric fracture
- 3) Cone fracture
- 4) Rib marks

36. Study of trace elements present in suspect and crime-scene glass fragments will provide :

- 1) Class characteristics of the glass
- 2) Bulk property of the glass
- 3) Distinctive and measurable characteristics towards individualizing glass to a common source
- 4) An idea about the type of glass

37. The common metal oxides found in the "soda-lime" glass are :

- 1) Sodium, calcium, magnesium and aluminium
- 2) Sodium, Boron and calcium
- 3) Sodium, Boron, Lead and Manganese
- 4) Sodium, Barium, Lead and Antimony

38. Fixed projectiles should be lifted only with :

- 1) Stainless steel tongs
- 2) Rubber tipped forceps
- 3) Sterilized spoon
- 4) Fingers

39. A 0.32 calibre revolver bullet fired from 4 meters will result in the target :

- 1) Blackening around the bullet hole
- 2) Showing only a dirt ring
- 3) Showing tattooing around the hole
- 4) Showing a hole with crops tear

40. The speed of pellets in a 12 bore shot gun is greatest when the barrel is :

- 1) Full choke
- 2) Improved cylinder
- 3) True cylinder
- 4) Quarter choke

41. Number or letter to indicate the size of shots are seen in :

- 1) Over powder wad
- 2) Cushion wad
- 3) Undershot wad
- 4) Overshot wad

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42. What is the ration of Potassium Nitrate, Charcoal and Sulphur in gun powder :

- 1) 75 : 10 : 15
2) 15 : 10 : 75
~~3) 10 : 15 : 75~~
~~4) 75 : 15 : 10~~

43. Calibre of a rifled fire arm is a measure of the :

- ~~1) Diameter of the bore across the body~~ 2) Diameter of the bore across the grooves
3) Length of the barrel 4) Diameter of the cartridge fired through it

44. Choke in the barrel of a shot gun :

- ~~1) increases the effective range~~ 2) decreases the effective range
3) increases the killing range 4) decreases the killing range

45. Ammunition inserted into the rear of the barrel is known as :

- 1) Muzzle loader ~~2) Breech loader~~
3) Magazine loader 4) Chamber loader

46. Barrel length required for a groove or land to make one complete revolution of the bore is :

- 1) The calibre 2) The bore diameter
3) The gauge ~~4) The pitch of rifling~~

47. The striations on the fired bullet was caused by :

- ~~1) The lands and grooves in the bore~~ 2) The cartridge chamber
3) The firing pin 4) The bolt action

48. Which of the following physical evidence must be preserved in the crime scene to find out origin?

- 1) Blood 2) Hair
~~3) Both (A) and (B)~~ 4) None of the above

49. Physical evidence provided by glass fragments is usually associated with a group and not to a single source and is said to possess -

- ~~1) Class characteristics~~ 2) Individual characteristics
3) Coloured characteristics 4) None of these

50. Footprint and fingerprint evidence found at the scene of occurrence should be :

- 1) retained in the custody of the I.O 2) sent to the fingerprint bureau only after apprehending the culprit
~~3) sent immediately to the court for custody~~ 4) retained by the I.O to facilitate identification of culprit

51. "Electronic Flash gun" is the component of :

- 1) Footprint kit 2) Fingerprint kit
~~3) Photography kit~~ 4) Packing kit

52. What type of shutter is placed in front or back of the film?

- 1) Leaf shutter ~~2) Focal plane shutter~~
3) Compur shutter 4) None of these

53. Infra-red spectroscopy is used to find out -

- ~~1) Functional groups~~ 2) Molecular structure
3) Trace elements 4) Molecular weights

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54. **Photoluminescence is the combination of :**

- 1) Light and dark radiation
- 2) Bright and dark radiation
- 3) Fluorescence and phosphorescence
- 4) Fragrance and smokeyness

55. **Gas chromatography and mass spectrophotometer technique can be best applied for :**

- 1) Fire debris analysis
- 2) Narcotic sample analysis
- 3) Explosive residues
- 4) All of these

56. **Common radiation source for infra-red spectrophotometer is :**

- 1) Nernst glower
- 2) Globar
- 3) Nichrome coil
- 4) All the above can be employed individually depending upon the mode

57. **In infrared spectroscopy, the methods used in the preparations of solid samples is/are :**

- 1) Potassium Bromide pellet method or Mull method
- 2) Micro-gas shells
- 3) Macro-gas shells
- 4) Gas shells

58. **The criteria for satisfactory colourimetric analysis is :**

- 1) Specificity and stability of colour
- 2) Reproducibility and sensitivity
- 3) Proportionality between colour and concentration
- 4) All of these

59. **Beer-Lamberts law is expressed as :**

- 1) $A=abc$
- 2) $A = \frac{1}{8} (abc)$
- 3) $A = \frac{1}{2} (abc)$
- 4) $A = \frac{1}{4} (abc)$

60. **Successful use of liquid chromatography depends on :**

- 1) Type of column packing and mobile phase
- 2) Column length and diameter
- 3) Mobile phase flow rate, temperature and sample size
- 4) All the above

61. **With the help of HPLC, the following analysis cannot be performed.**

- 1) Analysis of both volatile and non-volatile compounds
- 2) Isolation and purification of compounds
- 3) Separation of closely related compounds
- 4) Thermal analysis

62. **In gas chromatography, 'Rt' denotes :**

- 1) Retention volume
- 2) Retention time
- 3) Retention pressure
- 4) Retention temperature

63. **In chromatographic techniques, the carrier gas supply usually does not include :**

- 1) Helium
- 2) Nitrogen
- 3) Acetylene
- 4) Argon

64. **The tank to develop thin layer chromatography must be :**

- 1) Flat bottom
- 2) Saturated partially or fully
- 3) Tightly closed
- 4) All of these

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65. In cases of Arson, the inflammable accelerants like petrol, kerosene may be analysed by :
- 1) Gas chromatography
 - 2) X-ray diffraction
 - 3) Atomic absorption spectroscopy
 - 4) Neutron activation analysis
66. Correct procedure for collection of handwriting specimens from suspect for comparison. (i) Unrequested specimens from suspect (ii) Asked to write out exactly the same text as in the questioned document (iii) Showing the questioned document to the suspect and write the same (iv) Helping the suspect to write with punctuation and capitalization
- 1) (i) alone is correct
 - 2) (i) and (ii) are correct
 - 3) (i), (ii) and (iii) are correct
 - 4) All are correct
67. A neighbouring nationalist involved in a multi-dollar counterfeit currency scam was arrested and his premises were raided. As a forensic scientist, which of these will be of more evidential to charge sheet him?
- 1) Counterfeit currency
 - 2) Central processing unit
 - 3) Scanner with colour printer
 - 4) All the above
68. The correct procedure to be adopted for transporting the charred documents to the laboratory -
- 1) Insert a sheet of stiff paper beneath the charred documents and then lifted and packed
 - 2) Place the documents inside a plastic cover
 - 3) Handle with bare hands and place it in a solid container
 - 4) Both (A) and (B) are correct
69. In a case of death due to bullet injury, the medical officer is recovering a .22 bullet from the head of the victim. During the investigation you will concentrate on suspected persons possessing :
- 1) Revolvers
 - 2) Pistols
 - 3) Rifles
 - 4) All the above
70. In a highly decomposed unidentified body you are preserving severed head for establishing the identity. What is the most useful to fix the dead?
- 1) Passport size photograph
 - 2) A profile photo
 - 3) A casual snap showing dentition
 - 4) All the above
71. A couple of men were found dead in a car. The car engine was turned on and the deaths were due to carbon monoxide poisoning. Which organs are to be preserved for examination?
- 1) Stomach and liver in saline
 - 2) Lungs and blood in liquid paraffin
 - 3) Stomach and liver in liquid paraffin
 - 4) All the above
72. In general, death occurring persons get into unused wells can be attributed to :
- 1) Carbon monoxide
 - 2) Carbon dioxide
 - 3) Methane
 - 4) Sulphur dioxide

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73. In a case of hit and run road accident, you intercept 3 suspected vehicles in toll gate about 7 kms from the scene of crime. Which of the following clues in the scene of crime are useful in identifying the vehicle actually involved in the case?

- 1) Skid mark in the mud
- 2) Type mark in the mud
- 3) Skid mark on the road
- 4) All the above

74. Guideline(s) to be followed in collecting soil found on the hit and run case :

- 1) Material evidence and soil adhered to it
- 2) Lump soil from the scene of crime must be separately packed
- 3) Soil has to be collected from fenders and frame areas of the vehicle
- 4) Both (B) and (C)

75. In a natural calamity an unidentified male body was found. To fix the identity DNA typing was to be done. In absence of control blood, suggest suitable alternate sampling for DNA typing.

- 1) One square inch of liver
- 2) One square inch of spleen
- 3) Pulled head hairs from the deceased
- 4) All the above

76. The ideal procedure for transporting a weapon found under water :

- 1) Weapon should be dried and then packed
- 2) Weapon should be transported to the lab in a container filled with water from the same source
- 3) Weapon and water should be separately transported to the lab
- 4) Weapon alone transported to the lab

77. Explosion damaged patterns at the scene shows : (i) The direction in which the blast travelled (ii) The location of maximum damage (iii) The direction in which the bomb was thrown (iv) All the above

- 1) (i) and (iii) are correct
- 2) (ii) and (iii) are correct
- 3) (i) and (ii) are correct
- 4) (iv) is correct

78. Braille Point-triangle indicates the value of currency is :

- 1) Rs.500/-
- 2) Rs.100/-
- 3) Rs.50/-
- 4) Rs.1000/-

79. The watermark in genuine notes is impressed in the paper :

- 1) In a pulpy state
- 2) Before printing
- 3) At the time of printing
- 4) After printing

80. Repeated tool marks on a window bar would indicate the tool used in :

- 1) File
- 2) Jemmy
- 3) Hammer
- 4) Screw Driver

81. Etching reagent for cast iron and cast steel is:

- 1) 10% solution of H_2SO_4 and $K_2Cr_2O_7$
- 2) 10% solution of HCl in alcohol

- 3) Dilute KOH
- 4) Dilute NaOH

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82. **Whether obliterated engraved marks be restored :**

1) Can be restored if the erasure is too deep 2) cannot be restored

~~3) Can be restored if the erasure is not beyond the limit of restoration~~

4) Can be restored if the obliterated surface is smooth

83. **Which tool may not make a repetitive cut marks :**

1) Saw

2) Hacksaw

3) File

~~4) Crowbar~~

84. **A criminal can be linked to a crime even after a long interval through the tool and tool marks :**

1) Possible

2) Impossible

~~3) Possible if the tool is not extensively used after commission of crime~~

4) Always possible

85. **Restoration of filed off/erased marks are done through :**

~~1) Etching process~~

2) Thermal process

3) Electroplating

4) Galvanising

86. **Striated lines caused by a tool can be compared with the test tool marks made from the suspected tool using :**

1) Microscope

2) Stereoscopic microscope

3) Compound microscope

~~4) Comparison microscope~~

87. **What is tool marks?**

1) Trade mark of the tool

2) Specification of the tool

~~3) Marks caused by a tool when contact with another object~~

4) Details of manufacturer

88. **In which ancient Indian literature was found the scientific method of investigation?**

1) Indica

~~2) Arthashastra~~

3) Shakuntalam

4) Raghu vamsam

89. **When and where was the Institute of Criminology and Forensic Science established?**

1) 1953, Calcutta

2) 1830, Bombay

~~3) 1971, New Delhi~~

4) 1972, Hyderabad

90. **What are the types of search in the scene of crime to locate scientific evidence?**

1) 2 types (i) Indoor (ii) Outdoor

2) 3 types (i) Combing (ii) Sweeping (iii) Vacuum cleaning

~~3) 4 types : (i) Strip (ii) Spiral (iii) Sectional (iv) Grid~~

4) 5 types : (i) Strip (ii) Spiral (iii) Sectional (iv) Grid (v) Zonal

91. **To whom the court determines to possess knowledge relevant to the trial that is not expected of the average layperson?**

1) Government witness

2) Specialised witness

~~3) Expert witness~~

4) Subject witness

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92. What is the use of Potassium levels in the ocular fluid (Vitreous humor) in a dead body?

- 1) for estimating the time of death
- 2) to determine the cause of death
- 3) to determine the mode of death
- 4) All the above

93. Which of the following is the "Postmortem change" that cause a body to lose heat?

- 1) Rigor mortis
- 2) Algor Mortis
- 3) Autopsy
- 4) Livor mortis

94. "Voice print analysis" is related to :

- 1) Cases involving telephone threats
- 2) Cases involving finger print
- 3) Cases involving foot print
- 4) Cases involving polygraph / narco analysis

95. Who was a tireless advocate for applying microscopy to analytical problems, particularly Forensic Science cases?

- 1) Walter C. McCrone
- 2) Hans Gross
- 3) Albert S. Osborn
- 4) Leone Lattes

96. Who devised a relatively simple procedure for determining the blood group of a dried bloodstain?

- 1) Karl Landsteiner
- 2) Leone Lattes
- 3) Hans Gross
- 4) Albert S. Osborn

97. Who is the "Father of Forensic Toxicology"?

- 1) Alphonse Bertillon
- 2) Francis Galton
- 3) Mathieu Orfila
- 4) Leone Lattes

98. Finger prints may be resolved into three large general groups of patterns. They are :

- 1) Arch, Loop and Whorl
- 2) Arch, Loop and Whorl
- 3) Arch, Curve and Whorl
- 4) Arch, Loop and Swirl

99. The area of the finger print in which cores, deltas and ridges appear is known as -

- 1) Pattern area
- 2) Prime area
- 3) Patent area
- 4) Principal area

100. When there is a definite break in the fingerprint typeline, the following is considered as its continuation :

- 1) The ridge immediately inside of it
- 2) the ridge immediately outside of it
- 3) The second ridge immediately inside of it
- 4) The second ridge immediately outside of it

101. In classifying the finger prints, under all the fingers, the appropriate small letters should be placed for every pattern except the following :

- 1) Arch
- 2) Tented Arch
- 3) Ulnar loop and whorl
- 4) Radial loop

102. In primary classification of fingerprints, the numerical value assigned to a whorl in right middle finger impression is :

- 1) 16
- 2) 8
- 3) 4
- 4) 2

103. Gold and red bronze powders are used for developing finger prints on :

- 1) Dark coloured surface
- 2) Polished surface
- ~~3) Light coloured surface~~
- 4) On mirror

104. In iodine fuming method of developing latent finger print, iodine is absorbed by :

- ~~1) Fatty or oily matter in finger print~~
- 2) Salts in the finger print
- 3) Sweat in the finger print
- 4) Dead epidermal cells in fingerprint

105. The fingerprint consists normally of a deposit of perspiration which contains approximately :

- 1) 80% water and 20% solids
- 2) 85% water and 15% solids
- 3) 90% water and 10% solids
- ~~4) 99% water and 1% solid~~

106. Physical developer is a fingermask processing reagent for :

- ~~1) Porous surface~~
- 2) Polished surface
- 3) Mirror surface
- 4) Glass surface

107. Dimethyl cinnamaldehyde finger print developer is sensitive to :

- 1) Amino acids in finger prints
- 2) Fat and oils in finger prints
- ~~3) Urea in finger prints~~
- 4) Sodium Chloride in finger prints

108. The aging process of fingerprint impression results in :

- ~~1) Narrowing of the fingerprint ridges~~
- 2) Broadening of the fingerprint ridges
- 3) Increasing stickyness of the print
- 4) Increasing shine of the print

109. The Galton-Henry system of fingerprint classification displaced :

- ~~1) Anthropometric system~~
- 2) Anthropological system
- 3) Single digit fingerprint system
- 4) Ten digit fingerprint system

110. The appropriate microscope used for the examination of birefringent minerals present in the soil is :

- 1) Scanning electron microscope
- 2) Transmission electron microscope
- 3) Stereoscopic microscope
- ~~4) Polarizing microscope~~

111. Comparison of rifling marks on crime and test bullets can best be performed using :

- ~~1) Comparison microscope~~
- 2) Compound microscope
- 3) Binocular microscope
- 4) Stereoscopic microscope

112. Consider the statements : (i) The depth of focus is also a function of magnifying power (ii) Depth of focus decreases as magnifying power increases (iii) Depth of focus is directly proportional to the magnifying power (iv) The depth of focus is independent of magnifying power Of the statements :

- 1) (i) alone is correct
- ~~2) (i) and (ii) are correct~~
- 3) (i), (ii) and (iii) are correct
- 4) All are correct

113. The nature of illumination required to study a transperant specimen using a compound microscope is :

- ~~1) Transmitted illumination~~
- 2) Vertical illumination
- 3) Reflected illumination
- 4) Both (B) and (C)

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114. An optical instrument that uses a lens or a combination of lenses to magnify and resolve fine details of an object is :

- 1) Macroscope
3) Photo micrograph
 2) Microscope
4) Microphotograph

115. The microscope which can be used as a tool for determining whether or not a suspect has recently fired a gun is :

- 1) Scanning electron microscope coupled with X-ray analyser
3) Microspectrophotometer
2) Transmission electron microscope
4) Atomic force microscope

116. In polarising microscope, when the polarizer and analyser are crossed and no specimen is in place, the field appears :

- 1) Dark
3) Brown
2) Bright
4) Multi-coloured

117. Consider the statements : (i) A simple microscope is little more than a refined magnifying glass (ii) In simple microscope, magnification takes place in a single stage (iii) In a simple microscope, a virtual image is formed (iv) All modern simple microscopes are low power types. Of these statements :

- 1) (i) alone is correct
3) (i), (ii) and (iii) are correct
2) (i) and (ii) are correct
 4) All are correct

118. The size of the specimen area in view is known as :

- 1) Field of view
3) Magnification factor
2) Depth of focus
4) Magnifying power

119. The compensator slot is placed above the objective in :

- 1) Compound microscope
3) Polarizing microscope
2) Stereo microscope
4) All the above

120. Petrographic microscope refers to :

- 1) Scanning electron microscope
3) Microspectrophotometer
 2) Polarizing microscope
4) Stereo microscope

121. The objective is placed below the specimen in :

- 1) Inverted microscopes
3) Stereo microscopes
2) Compound microscopes
4) Petrographic microscope

122. The conductive material used for coating non-metallic samples for examination under SEM is :

- 1) Gold
3) Copper
2) Iron
4) Lead

123. Polygraph diagnosis would be seriously interfered, if the test is :

- 1) Not conducted in a quite, private, semi-sound proof room
3) Conducted in the presence of investigators or other spectators in the examination room itself.
2) Conducted in the midst of conversation of persons outside the examination room
 4) All the above

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124. During polygraph test, if the subject responds more to the relevant (issue) questions than to the irrelevant (known truthful) questions, the subject is considered as :

- 1) Not telling the truth
- 2) Truthful
- 3) Nervous
- 4) Over responsive

125. Questions capable of provoking emotion, which are about an act of wrong doing of the same general nature as the main issue under investigation, but are not related to crime under investigation are :

- 1) Relevant questions
- 2) Control questions
- 3) Irrelevant questions
- 4) None of these

126. Respiratory movements of an individual subjected to polygraph examination is measured by :

- 1) Pneumographs
- 2) Galvanometers
- 3) Somnograph
- 4) Voice stress analyzer

127. When comparing control and disputed voice samples, forensic examiners apply :

- 1) Aural techniques
- 2) Visual techniques
- 3) Both (A) and (B)
- 4) None of these

128. According to the Bell System Engineer, Lawrence Kersta, the voice print :

- 1) is simply a graphic display of the unique characteristics of the voice
- 2) is simply a graphic display of the class characteristics of the voice
- 3) could provide a valuable means of personal identification
- 4) Both (A) and (C)

129. The response of a truthful person is determined to be deceptive during polygraph examination is termed as :

- 1) False negative
- 2) False positive
- 3) Positive
- 4) None of these

130. It is required for any new technique to be generally accepted as reliable in the scientific community in which it is developed before being accepted as evidence before the court of law. The above requirement is stipulated in :

- 1) Card test
- 2) Frye's general acceptance test
- 3) Rule of discovery
- 4) None of these

131. Consider the statements : (i) The acoustic output of a vocal tract is uniquely determined by its shape and size. (ii) The individuals with differently shaped vocal tracts will output different acoustics for the same linguistic sound (iii) Individuals who do not differ very much in vocal tract dimensions will also tend to differ less in overall acoustics. (iv) The acoustic output is independent of the shape and size of the vocal tract. Of these statements :

- 1) (i) alone is correct
- 2) (i) and (ii) are correct
- 3) (i), (ii) and (iii) are correct
- 4) All are correct

132. Absence of voice bars in sound spectrogram indicates :

- 1) Silence
- 2) Pause
- 3) Absence of vibration of vocal cord
- 4) All of these

133. Consider the statements : When making an anonymous call, (i) the voice can be unintentionally altered by the speaker because of peculiar psychological conditions of stress or fear (ii) State of health, tobacco and psychotropic substances may also affect the perpetrator's voice (iii) The perpetrator's may also deliberately modify the voice and language (iv) The perpetrator may change his voice Of these statements :

- 1) (i) alone is correct
- 2) (i) and (ii) are correct
- 3) (i), (ii) and (iii) are correct
- 4) All are correct

134. The dynamic range of normal speech signal is :

- 1) 60 - 70 dB
- 2) 40 - 60 dB
- 3) 80 - 100 dB
- 4) 60 - 100 dB

135. The mechanical function/s involved in the speech production is/are :

- 1) Phonation
- 2) Articulation
- 3) Phonation and articulation
- 4) Both (A) and (B)

136. Step length has been utilized to estimate :

- 1) The weight of the individual
- 2) The height of the individual
- 3) The age of the individual
- 4) The sex of the individual

137. While taking photograph of the foot print impression, the camera should be aligned :

- 1) Absolutely parallel with the surface of the impression
- 2) at 10° with the surface of impression
- 3) at 20° with the surface of impression
- 4) at 30° with the surface of impression

138. Wear characteristics of foot wear are :

- 1) the changes in the surface of the outsole that are observable in the impression and known shoe
- 2) the changes in the surface of the outsole particularly in the heel area
- 3) the changes in the surface of the outsole particularly in the toe area
- 4) the changes in the surface of the outsole particularly in the arch area

139. When a random characteristic in foot wear changes its appearance, then :

- 1) it is still useful as an identifying characteristic
- 2) it is not useful as an identifying characteristic
- 3) it can be associated with the characteristic
- 4) it can be positively associated with the characteristic

140. One of the following is not a criteria of a casting material :

- 1) It should be capable of reproducing fine detail
- 2) It should be able to be cleaned without loss of details
- 3) It should set in a reasonable time
- 4) Should require special equipment and complex procedure

141. Electrostatic lifting method of dust prints originated in :

- 1) USA
- 2) India
- 3) China
- 4) Japan

142. While taking cast of footprint with dental stone, spraying shellac is :

- 1) recommended
- 2) absolutely necessary
- 3) not necessary
- 4) detrimental to the cast

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143. Dry residue footwear impressions can be visualised with :

- 1) Oblique bright flood light
- 2) Overhead flood light
- 3) UV light
- 4) IR light

144. Stones are chemically identical to the :

- 1) Plasters
- 2) Silicone
- 3) Alginates
- 4) Moulage

145. Dental stone and die stone casts are best cleaned in :

- 1) Calcium Sulphate Solution
- 2) Calcium Chloride solution
- 3) Potassium chloride solution
- 4) Potassium sulphate solution

146. Impressions in snow can be cast with :

- 1) Snow print wax
- 2) Sulphur
- 3) Paraffin wax
- 4) Moulage

147. In addition to the tread patterns other data that can be derived from the tyre impressions are :

- 1) Wheel base and tyre tread stance measurements
- 2) Wheel alignment and tyre length measurements
- 3) Wheel height and tyre width measurements
- 4) Wheel dimension and tyre width measurements

148. The common foot angles are :

- 1) Acute angles
- 2) Obtuse angles
- 3) Right angles
- 4) Triangles

149. Acceleration marks appear :

- 1) dark at the beginning and becomes lighter as mark continues
- 2) light at the beginning and becomes darker as mark continues
- 3) lighter
- 4) darker

150. A skid mark is an example of :

- 1) recognizable evidence
- 2) photographic evidence
- 3) physical evidence
- 4) evidence in vehicular accident

151. The first fractures that appear on the surface opposite to that of the penetrating force is :

- 1) Concentric fractures
- 2) Reverse side fractures
- 3) Back side fractures
- 4) Radial fractures

152. When a blood drop falls in air its shape will be more or less :

- 1) Elliptical
- 2) Ovoid
- 3) Spherical
- 4) Irregular

153. Wads are found in the cartridges of :

- 1) Rifle
- 2) Pistol
- 3) Revolver
- 4) Shot gun

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154. Irreversible work simply means in conservation of energy law :

- | | |
|--|---|
| <input checked="" type="checkbox"/> 1) Some energy is used for a particular process, it cannot be converted back into the kinetic energy | <input type="checkbox"/> 2) Some energy is used for a particular process, can be converted back into the kinetic energy |
| <input type="checkbox"/> 3) total energy used for different process, can be converted back into kinetic energy | <input type="checkbox"/> 4) total energy used for different process, cannot be converted back into kinetic energy |

155. One could identify the type of vehicle involved in the accident by :

- | | |
|---|--|
| <input type="checkbox"/> 1) measuring the length and width of all the tyre marks found at the scene | <input type="checkbox"/> 2) take close-up photographs to record tread patterns |
| <input checked="" type="checkbox"/> 3) Both (A) and (B) | <input type="checkbox"/> 4) None of these |

156. While investigating hit and run road accidents, the most effective clue material one can collect from the scene of crime to identify the vehicle involved will be :

- | | |
|---|--|
| <input type="checkbox"/> 1) Paint flakes | <input type="checkbox"/> 2) Broken pieces of head lamp glass |
| <input checked="" type="checkbox"/> 3) (A) and/or (B) | <input type="checkbox"/> 4) All the above |

157. In case of hit and run road accident, which of the following will be useful in identifying the vehicle involved?

- | | |
|---|--|
| <input type="checkbox"/> 1) Skid mark in oil | <input checked="" type="checkbox"/> 2) Tyre mark in mud |
| <input type="checkbox"/> 3) Skid mark in metal road | <input type="checkbox"/> 4) Skid mark with sideward drag |

158. The device called Electrostatic Detection Apparatus (ESDA) is used in detecting :

- | | |
|---|---|
| <input checked="" type="checkbox"/> 1) Indented impressions | <input type="checkbox"/> 2) Carbon copy impressions |
| <input type="checkbox"/> 3) Embossed impressions | <input type="checkbox"/> 4) None of the above |

159. Erasures in documents can be detected by -

- | | |
|--|--|
| <input type="checkbox"/> 1) Examination under a microscope | <input type="checkbox"/> 2) Examination under UV light |
| <input type="checkbox"/> 3) Examination under oblique lighting | <input checked="" type="checkbox"/> 4) All of these |

160. While obtaining the standard or request writing form the accused -

- | | |
|--|--|
| <input type="checkbox"/> 1) The text should be dictated from a newspaper | <input checked="" type="checkbox"/> 2) The text should be read out from a prepared text similar to the questioned document |
| <input type="checkbox"/> 3) The text should be dictated to the instructions on capital and small lettering | <input type="checkbox"/> 4) None of these |

161. For comparison, known writings of the suspect furnished to the examiner should be -

- | | |
|--|--|
| <input checked="" type="checkbox"/> 1) As alike as possible to the questioned document | <input type="checkbox"/> 2) It should be in English only |
| <input type="checkbox"/> 3) It should be written in pencil only | <input type="checkbox"/> 4) None of these |

162. Many ink dyes can be separated by the technique of :

- | | |
|--|--|
| <input type="checkbox"/> 1) Density gradient method | <input type="checkbox"/> 2) Fractional distillation method |
| <input checked="" type="checkbox"/> 3) Thin layer chromatography | <input type="checkbox"/> 4) Electrophoresis method |

163. Extractor and ejector marks are found on :

- | | |
|---|--|
| <input type="checkbox"/> 1) Fired bullet | <input type="checkbox"/> 2) Cartridges |
| <input checked="" type="checkbox"/> 3) Fired cartridge case | <input type="checkbox"/> 4) Base of the bullet |

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164. The DNA profile will be same for two individuals, when the individuals are :

- 1) Identical twins
- 2) Fraternal twins
- 3) Twins in general
- 4) Triplets in general

165. All members of a maternal lineage will share the same :

- 1) mtDNA sequence
- 2) hypervariable regions
- 3) Both (A) and (B)
- 4) None of these

166. It is possible to individualize dried blood stains by :

- 1) Absorption elution technique
- 2) DNA typing
- 3) HLA typing
- 4) Blood enzyme studies

167. DNA typing can be useful in :

- 1) establishing paternity
- 2) rape investigation
- 3) establishing identify of decomposed dead bodies
- 4) All the above

168. When seminal stained clothes are recovered form the victim, the control specimen to be collected from the suspect are :

- 1) blood and saliva
- 2) semen and saliva
- 3) blood and semen
- 4) blood, semen and saliva

169. Rh antigens are present in :

- 1) White blood cells
- 2) Red blood cells
- 3) Platelets
- 4) Serum

170. The ABO antigens are present in the RBC in the :

- 1) inner core along with haemoglobin
- 2) haemoglobin
- 3) surface
- 4) All of these

171. The lethal effect of explosive :

- 1) Heat
- 2) Shock wave
- 3) Sharpnel
- 4) All of these

172. ANFO is an acronym for :

- 1) American North Forensic Organization
- 2) Aluminium Nitrate Ferric Oxide
- 3) Ammonium Nitrate Fuel Oil
- 4) Atomic Nuclear Fuel Organization

173. Bombs and ammunition with high quality finish and with service markings are :

- 1) IED
- 2) Military Ammunition
- 3) Improvised ammunition
- 4) Terrorist ammunition

174. An explosive is :

- 1) Material that undergoes a rapid exothermic reaction
- 2) Material that undergoes a rapid endothermic reaction
- 3) Both (A) and (B)
- 4) None of these

175. Secondary fragments are :

- 1) Pitting
- 2) Remnants of explosives
- 3) Crater
- 4) Fire

176. Single bsae Nitro cellulose propellant in colloidal state is :

- 1) Flashless powder
- 2) Smokeless powder
- 3) Gelatin
- 4) Dynamite

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177. An explosive is :

- 1) Stable chemical material
- 2) Unstable chemical material
- 3) Energetic chemical material convert their chemical energy into kinetic energy
- 4) A mixture of 2 or more chemical substances

178. Plastic explosives are those :

- 1) Explosives packed in a plastic container
- 2) PVC - Pipe bombs
- 3) Possess qualities of malleability
- 4) None of these

179. Explosive compound having intermediate sensitivity between sensitive primary explosive and insensitive secondary explosive is :

- 1) Detonator
- 2) Booster
- 3) Safety fuse
- 4) Timer

180. High velocity bullets leave a jacket made of :

- 1) Copper
- 2) Cupro-nickel alloy
- 3) Steel
- 4) Either one of the above

181. In UV spectrometry, the detector used is :

- 1) a glass tube
- 2) Photo multiplier tube
- 3) Radiowave sensor
- 4) Remote sensor

182. The term "stop" in the field of photography refers to :

- 1) Exposure
- 2) Shutter speed
- 3) Film speed
- 4) All the above

183. Rimless cartridges are used in :

- 1) Pistols
- 2) Automatic firearms
- 3) Semi automatic fire arms
- 4) All the above

184. Irrelevant term in gas chromatography is :

- 1) Resolution
- 2) Retention time
- 3) Derivatization
- 4) Medullary index

185. Chronic _____ poisoning can be detected by chemical examination of hair.

- 1) Chromium
- 2) Sodium
- 3) Phosphorus
- 4) Arsenic

186. Which is the midline point where the two nasal bones and the frontal intersect?

- 1) Nasion
- 2) Rhinion
- 3) Prosthion
- 4) Metapion

187. Identification is possible for man-made fibres using :

- 1) UV spectrophotometer
- 2) Atomic absorption spectrophotometer
- 3) IR spectrophotometer
- 4) HPLC

188. The most important part of the hair used to distinguish between human and animal hair is :

- 1) Medulla
- 2) Cortex
- 3) Cuticle
- 4) None of these

189. _____ is the white hard tissue that covers the crown of the teeth.

- 1) Dentin
- 2) Enamel
- 3) Cementum
- 4) Cuspid

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190. Human hair and animal hair with root can be differentiated by :

- 1) Benzidine test
- 2) Ducquenois test
- 3) Precipitin test
- 4) Berbano's test

191. Sisal is classified as :

- 1) Bast fibre
- 2) Seed hair
- 3) Leaf fibre
- 4) Animal fibre

192. Detonation needs :

- 1) Oxygen from atmosphere
- 2) Oxygen from within the explosive mixture
- 3) A shock wave
- 4) A sound wave

193. The main objective of arson investigation is :

- 1) To find out origin of fire
- 2) To over see fire fighting operations
- 3) To assess the value of the materials burnt
- 4) To have discussion with the spectators around

194. The motivation/s for Arson is/are :

- 1) Financial profit
- 2) Revenge and vandalism
- 3) Crime concealment
- 4) All the above

195. The bright colour emitted by the Oxyacetylene torch is an example of :

- 1) Glowing fire
- 2) Flaming fire
- 3) Ignition
- 4) Combustion

196. The decomposition of organic matter by heat is called :

- 1) Hydrolysis
- 2) Putrefaction
- 3) Pyrolysis
- 4) Combustion

197. The material used to start or sustain fire is known as :

- 1) Accelerant
- 2) Retardant
- 3) Catalyst
- 4) Explosive

198. The concentraion of CO in blood is an important factor in determining whether the deceased was -

- 1) alive after the fire
- 2) dead prior to fire
- 3) alive during the fire
- 4) dead prior to fire or alive during fire

199. Long and bottle necked cartridge cases are meant for :

- 1) Low velocity weapons
- 2) High velocity weapons
- 3) Medium velocity weapons
- 4) Shotgun

200. Components of fire :

- 1) Heat oxygen and fuel
- 2) Heat hydrogen and fuel
- 3) Oxidant, reductant and fuel
- 4) All of these