

Forensic Ballistics and Physical Sciences**Answer Key****(Correct Answers are marked in bold letters)****Section - A**
Forensic Aptitude

1. Vijay Singh (Golf player) is from which country?
 - a) UK
 - b) USA
 - c) India
 - d) Fiji**

2. Which of these is the plant important in sericulture?
 - a) Cassia
 - b) Legumes
 - c) Pea
 - d) Mulberry**

3. Which of the following Himalayan regions is called "Shivalik's"?
 - a) Upper Himalayas
 - b) Lower Himalayas
 - c) Outer Himalayas**
 - d) Inner Himalayas

4. United Arab Emirates is federation of how many Emirates
 - a) 6
 - b) 7**
 - c) 5
 - d) 8

5. Who amongst the following is a winner of Ramon Magsaysay Award?
 - a) Vinobha Bhave
 - b) Dara Khurody
 - c) Tribhuvandas patel
 - d) All of the above**

6. Cinder Cone is a type of
 - a) Dress
 - b) Volcano**
 - c) Human Disease
 - d) None of the above

7. Who of the following is not a hockey player?
 - a) Birendra Lakra

- b) Dhyan Chand
c) Dhanraj Pillai
d) **Bajrang Punia**
8. There are _____ views on the issue of giving bonus to the employees
a) independent
b) **divergent**
c) modest
d) adverse
9. What is the missing letter in this series?
b e h k n ? t
a) **q**
b) r
c) s
d) u
10. There are twenty-four students in a certain class. For every nine girls there are three boys. How many girls and how many boys are there in the class?
a) 19 and 5
b) **18 and 6**
c) 15 and 9
d) 14 and 10
11. FISH: SCHOOL
a) **wolf: pack**
b) cow: farm
c) herd: peacock
d) elephant: jungle
12. While making Crime Scene Sketch location of interest on the walls or elsewhere in the enclosed space are best shown using
a) Triangular method of sketching
b) Base line method of sketching
c) **Cross projection method of sketching**
d) Compass point method
13. Magnification range from 2X to 250000X is possible from:
a) Fluorescence microscope
b) Polarizing microscope
c) **Electron microscope**
d) Stereo zoom microscope
14. Who conducts the assessment during the accreditation process?
a) Lab technicians

- b) Competent authorities
c) **External assessors**
d) Police officers
15. Which principle emphasizes the use of Scientific methods and Techniques in Forensic Analysis?
a) Frye Standard
b) **Daubert Standard**
c) Principle of Exclusion
d) Alphonse Bertillon's Principle
16. What is the full form of RTGS?
a) Ready Transaction and Gross Settlement
b) **Real Time Gross Settlement**
c) Real Transaction and General Settlement
d) Real Transaction Gross Settlement
17. The founder of the Innocence Project, an organization dedicated to using DNA evidence to exonerate wrongfully convicted individuals, is:
a) Dr. Michael Baden
b) Dr. Henry C. Lee
c) **Dr. Barry Scheck**
d) Dr. Paul L. Kirk
18. If the sum of two number is 32 and their difference is 16, the smaller number would be
a) 6
b) **8**
c) 16
d) 18
19. In India Inquest in Dowry Death is done by
a) Police
b) Coroner
c) **Magistrate**
d) Medical examiner
20. Hands of a clock overlap/coincide in a day
a) 24 times
b) **22 times**
c) 6 times
d) 12 times
21. How many cores and deltas are present in a whorl
a) **Two deltas and one core**
b) One delta and two cores

- c) Two deltas and two cores
d) One delta and one core
22. Detection of deception means
a) Psychological profiling of a suspect
b) Examining mental condition of suspect
c) **To find out whether the suspect is misleading**
d) To elicit number of crimes committed by the suspect
23. Order for exhumation can be given by
a) District Collector
b) Additional District Magistrate
c) Sub-collector
d) **Any of the above**
24. The Electromagnetic Spectrum's Infrared region stretches from:
a) 380-740 nm
b) 500-1mm
c) 165-525 nm
d) **760-1 mm**
25. Which of the following is used for three-dimension image?
a) Compound Microscope
b) Simple Microscope
c) Transmission Electron Microscope (TEM)
d) **Scanning Electron Microscope (SEM)**
26. Presence of a functional group in a compound can be established by using
a) Chromatography
b) **IR Spectroscopy**
c) Mass Spectroscopy
d) X-ray diffraction
27. Which of the following Microscope best for observing colorless cells
a) Bright field microscope
b) **Dark field microscope**
c) Simple microscope
d) Stereo microscope
28. A written or recorded statement made by someone who is not testifying in court is classified as:
a) Physical evidence
b) Demonstrative evidence
c) **Hearsay evidence**
d) Expert evidence

29. Which method involves searching a Crime Scene in a back-and-forth pattern, covering the area systematically?
- Spiral search method
 - Strip search method
 - Grid search method**
 - Quadrant search method
30. What is the purpose of using a baseline in Crime Scene sketching?
- To establish a reference line for measurements**
 - To indicate the direction of entry
 - To mark the location of evidence
 - To create a visual representation of the crime scene
31. What is the recommended procedure for Photographing individual pieces of evidence at a crime scene?
- Capture only one angle for each item
 - Use a flash for better visibility
 - Photograph each item in context and from multiple angles**
 - Avoid photographing evidence to prevent contamination
32. Which is the only nation to have won both the FIFA Football World Cup and the FIFA Women's Football World Cup?
- Brazil
 - Italy
 - Argentina
 - Germany**
33. These are Sketching methods in crime scene, except
- Rectangular co-ordinate method
 - Spiral co-ordinate method**
 - Triangular co-ordinate method
 - Polar co-ordinate method
34. In crime scene reconstruction, what does the term "trajectory analysis" refer to?
- The path of a projectile through space**
 - The sequence of events leading up to the crime
 - The psychological profile of the suspect
 - The time of day the crime occurred
35. ISO/IEC 17025 accreditation for forensic laboratories in India ensures:
- Adherence to forensic procedures only
 - Quality and competence in testing and calibration**
 - Compliance with international trade regulations

- d) Exemption from regulatory audits
36. Which technique is suitable for separating large DNA fragments or whole chromosomes?
- Agarose gel electrophoresis
 - SDS-PAGE
 - Pulse-field gel electrophoresis**
 - Capillary electrophoresis
37. What role does the loading buffer play in electrophoresis?
- Provides mechanical support
 - Enhances sample conductivity**
 - Separates molecules based on charge
 - Regulates temperature
38. Determine the mode of the decision received seven days in a row:
11,13,13,17,19,23,25
- 11
 - 13**
 - 17
 - 23
39. Chromatic aberration is also known as
- Colour fringing**
 - Colour filter
 - Both a &b
 - None of the above
40. In which of the following causing death a human being will be Culpable Homicide not amounting to murder:
- Causing an injury which is likely to cause death
 - Doing something which so imminently dangerous that it will cause death in all probability
 - Injury which the offender knows that it is likely to cause death of the person to whom the harm is caused
 - causing Injury which is sufficient in the ordinary course of nature to cause death**
41. For which offence can the Police arrest without a court order?
- Cognizable offences**
 - Bailable offences
 - Detention offences
 - Non-cognizable offences

42. Which of the following fibre is of mineral origin?
- Mohair
 - Nylon
 - Asbestos**
 - Rayon
43. Which of the following measures the spread of data?
- Mean
 - Median and interquartile range
 - First and third quartiles
 - Standard deviation and variance**
44. The term 'Eddy Diffusion' is used in which of the following analytical techniques?
- Microscopy
 - Chromatography**
 - Spectrophotometry
 - Differential thermal analysis
45. In an air crash case, the following method of survey is most useful
- Strip method
 - Spiral method
 - Zonal method
 - Wheel method**
46. In SEM, the incident beam is focused by means of
- Lens
 - Mirrors
 - Electromagnets**
 - Slits
47. In the following question, find the correctly spelt word
- Quintessance
 - Quintesance
 - Quintessence**
 - Quintassence
48. Which of the following is a robust tool for Analysis of adulteration of Petrol, Diesel and Kerosene
- Gas chromatography**
 - Spectrophotometry
 - Thin layer chromatography
 - Electrophoresis

49. Which of the following is designed to control the operations of a computer?
- a) User
 - b) Application Software
 - c) **System Software**
 - d) Utility Software
50. Which of the following is not a characteristic of a computer?
- a) Versatility
 - b) Accuracy
 - c) Diligence
 - d) **I.Q.**

Section-B
Forensic Ballistics and Physical Sciences

51. In Comparison Microscope which lens is used
- a) Convex mirror
 - b) Concave mirror
 - c) **Convex lens**
 - d) Concave lens
52. The name of Scanning Electron Microscope is so because it uses
- a) **High energy electrons**
 - b) Low energy electrons
 - c) Zero energy electrons
 - d) All of the above
53. Sound waves are
- a) S waves
 - b) Electromagnetic waves
 - c) Transverse waves
 - d) **Longitudinal waves**
54. The Light Year is
- a) **Unit of Distance**
 - b) Unit of Time
 - c) Unit of Velocity of Light
 - d) One year time in space
55. One Femtometer is equal to
- a) 10^{-5} Meter
 - b) 10^{-10} Meter
 - c) **10^{-15} Meter**
 - d) 10^{-20} Meter

56. The lowest layer in earth's atmosphere which is in direct contact of earth surface
- Mesosphere
 - Troposphere**
 - Ionosphere
 - Stratosphere
57. The recoil action in firearm when a cartridge is fired is
- Due to Newton's first law of motion
 - Due to Newton's second law of motion
 - Due to Newton's third law of motion**
 - None of the above
58. In close range firing, which of the following will not be observed
- Scorching
 - Burning
 - Blackening
 - Crushing**
59. The striations due to lands & grooves in the barrel of rifled firearm can be confirmed by
- Stereo Microscope
 - Stereo Zoom Microscope
 - Compound Microscope
 - Comparison Microscope**
60. The cartridge case of cartridges used for firing through rifled firearms is made of
- Cartridge copper
 - Cartridge brass**
 - Cartridge zinc
 - Cartridge iron
61. The Gun Shot Residue (GSR) particles have unique composition of
- Pb, Cu & Ba
 - Pb, Sb & Cu
 - Pb, Sb & Ba**
 - Pb, N & Ba
62. The choke is not provided in smooth bore firearms in following categories
- Double choke**
 - Full choke
 - Half choke
 - Quarter choke
63. A projectile travels the farthest, when it is launched at an angle of

- a) 30°
 - b) 45°**
 - c) 60°
 - d) 75°
64. The charge on an electron is
- a) $+1.6 \times 10^{19}$ Coulomb
 - b) -1.6×10^{19} Coulomb
 - c) $+1.6 \times 10^{-19}$ Coulomb
 - d) -1.6×10^{-19} Coulomb**
65. Two resistors each of same value, are connected in series and current is supplied then
- a) Same amount of current will flow in both of them**
 - b) Different amount of current will flow in both of them
 - c) No current will flow in both of them
 - d) Half amount of current will flow in each of them
66. The cartridge of blank firearms do not have
- a) Primer
 - b) Propellant
 - c) Projectile**
 - d) P cap
67. Air cushion wads in shotgun cartridge is placed
- a) Above pellets
 - b) Below pellets**
 - c) Below propellant
 - d) On the top below crimp
68. Among proton & positron, which is heavier
- a) Both have equal mass
 - b) Positron
 - c) Proton**
 - d) None of the above
69. If a firearm has two barrels, it should be
- a) Shotgun**
 - b) Rifle
 - c) Pistol
 - d) Revolver
70. The danger signal are of red color because
- a) It's scattering by air molecules of the atmosphere is zero

- b) It's scattering by air molecules of the atmosphere is maximum
c) **It's scattering by air molecules of the atmosphere is minimum**
d) None of the above
71. Photoelectric detector use
a) **Infrared Light**
b) Ultraviolet Light
c) Electromagnetic radiation
d) None of the above
72. In Fluorescence the surface absorbs energy in form of
a) α particle
b) β particle
c) Electron
d) **Photon**
73. Which of the following rays have neutral charge
a) β ray
b) **γ ray**
c) α ray
d) Cathode ray
74. In Neutron Activation Analysis
a) Neutrons are emitted
b) α ray are emitted
c) β ray are emitted
d) **γ ray are emitted**
75. Vibrational spectra are sensitive to
a) Atomic interactions
b) Intra molecular interactions
c) **Inter molecular interactions**
d) Nuclei interactions
76. In elastic collisions
a) Mass is conserved
b) Momentum is conserved
c) Potential energy is conserved
d) **Kinetic energy is conserved**
77. One byte is equal to
a) 2046 bit
b) 1064 bit
c) 1024 bit
d) **8 bit**

78. If two persons are doing normal conversation the level of sound will be approximately
- 10 dB
 - 30 dB
 - 60 dB**
 - 100 dB
79. The international methodology of ACE-V in fingerprint examination refers to
- Analysis, Comparison, Exclusion & Verification
 - Analysis, Comparison, Estimation & Verification
 - Analysis, Comparison, Evaluation & Verification**
 - Analysis, Comparison, Examination & Verification
80. Which type of editing can be done in analog video tape
- Linear**
 - Non-linear
 - Automatic
 - Semi-automatic
81. Which of the following method is not used for image enhancement
- Histogram equalization
 - Denoising
 - Median filtering
 - Optical matching**
82. Full form of 'WMV' video file extension is
- Windows Melody Video
 - Windows Movie Video
 - Windows Media Video**
 - Windows Master Video
83. Velocity of light is minimum in
- Diamond**
 - Glass
 - Water
 - Inert Gases
84. CODEC can not be used to
- Play media file
 - Create media file
 - Send media file
 - Authenticate media file**
85. Hexadecimal number system has
- Alphanumeric base**

- b) Numeric base only
 - c) Text base only
 - d) Alphatext base
86. The soft X-rays have wavelength range of
- a) Less than 1 Å
 - b) B. 1 - 20 Å
 - c) **C. 20 - 200 Å**
 - d) D. 200- 300 Å
87. Which of the following evidences should a forensic expert suggest for seizure from the crime scene?
- a) **DVR with connectors & cables**
 - b) Only Hard Disk of DVR
 - c) Only the relevant video clip in CD/ DVD
 - d) None of the above
88. The transcription of voice recording is desired by Forensic Examiners
- a) For selection of clue words to be mentioned in examination report
 - b) For selection of clue words to be found in sample voice
 - c) For selection of clue words to be found in questioned voice
 - d) **For selection of clue words to be compared in both questioned & sample voice**
89. Normally the exhibits collected at Scene of Crime should be deposited in Forensic Lab
- a) As decide by concerned Investigating Officer
 - b) In sealed condition in only one parcel
 - c) **In sealed condition in separate parcels**
 - d) In un-sealed condition
90. If the questioned & sample voice are in different languages, following will be used
- a) Text Independent Speaker Identification System
 - b) **Language Independent Speaker Identification System**
 - c) Gaussian Speaker Models
 - d) Laplace Speaker Models
91. Direct Current (DC) can be stored in
- a) **Capacitor**
 - b) Resistance
 - c) Choke
 - d) Transformer
92. The marks on bullet caused by the barrel of firearm is example of

- a) Abrasion marks
 - b) Indentation marks
 - c) Compression marks
 - d) **Impression marks**
93. The fire involving flammable liquids is classified as
- a) Class A fire
 - b) **Class B fire**
 - c) Class C fire
 - d) Class D fire
94. The best conductor of electricity is
- a) **Silver**
 - b) Copper
 - c) Iron
 - d) Aluminium
95. In cotton cloth industry which dye is used
- a) **Direct dye**
 - b) Acid dye
 - c) Basic dye
 - d) Reactive dye
96. The Threshold frequency is
- a) Frequency which holds the surface electrons
 - b) Has no relation with Photoelectric effect
 - c) Highest frequency above which Photo electric effect cannot occur
 - d) **Lowest frequency below which Photo electric effect cannot occur**
97. Full form of MASER is
- a) Mega Amplification by Stimulated Emission of Radiations
 - b) Micro Amplification by Stimulated Emission of Radiation
 - c) **Microwave Amplification by Stimulated Emission of Radiation**
 - d) Meta Amplification by Stimulated Emission of Radiation
98. The detection limit by using Graphite Furnace Atomic Absorption Spectrometry is:
- a) Parts per Million level
 - b) **Parts per Billion level**
 - c) Parts per Thousand level
 - d) Parts per Hundred level
99. Neutron cannot be produced by
- a) Nuclear fusion
 - b) Nuclear fission

- c) **Thermodynamics**
d) Radioactive decay
100. Example of magnetic storage media is
a) DVD
b) Memory Card
c) SIM Card
d) **Floppy Disc**
101. The value of Permittivity of Free Space (ϵ_0) is
a) **8.85×10^{-12} F/m**
b) 8.85×10^{12} F/m
c) 8.85×10^{-10} F/m
d) 8.85×10^{10} F/m
102. Velocity of sound in vacuum is
a) 343 Kilometer/Second
b) 343 Meter/Second
c) 343 Foot/Second
d) **Zero Meter/Second**
103. The light rays take time in arriving to earth from sun
a) **8 minutes**
b) 8 seconds
c) 80 seconds
d) 80 minutes
104. Maxwell's equations are applicable on
a) Light waves
b) Sound waves
c) **Electromagnetic waves**
d) Seismic waves
105. The layer in earth's atmosphere which is useful for communication is
a) Exosphere
b) Mesosphere
c) **Ionosphere**
d) Stratosphere
106. The cyclic rate of fire in AK-47 is
a) **600 round/ minute**
b) 600 round/ second

- c) 600 round/ hour
 - d) 600 round/ millisecond
107. The primers in cartridge contain
- a) No Explosive
 - b) Both Low & High Explosives
 - c) High Explosive
 - d) **Low Explosive**
108. In Compound Microscope
- a) Eye piece & objective both have equal focal length
 - b) Eye piece has less focal length than objective
 - c) **Eye piece has more focal length than objective**
 - d) None of the above
109. In ordnance the small arms are those firearms who can fire projectile of diameter
- a) Greater than 1 inch
 - b) **Less than 1 inch**
 - c) Equal to 1 inch
 - d) None of the above
110. The bullet fired from right hand rifled firearms will have
- a) No rifling marks
 - b) Straight rifling marks
 - c) Anti-clockwise rifling marks
 - d) **Clockwise rifling marks**
111. Heaviest particle of atom is:
- a) **Neutron**
 - b) Proton
 - c) Electron
 - d) Positron
112. The automotive glass is made of which of the following?
- a) Nitrites of K, Mg & Al
 - b) **Oxides of K, Mg & Al**
 - c) Oxalates of K, Mg & Al
 - d) Nitrates of K, Mg & Al
113. Ricochet of bullet means
- a) It has penetrated the target
 - b) It is absorbed in target
 - c) **It is deflected from target**
 - d) It is embedded from target

114. Value of “G” as Gravitational Constant is:

- a) $6.6 \times 10^{-11} \text{ m}^3 \text{ kg}^{-1} \text{ s}^{-2}$
- b) $6.6 \times 10^{-11} \text{ cm}^3 \text{ kg}^{-1} \text{ s}^{-2}$
- c) $6.6 \times 10^{11} \text{ m}^3 \text{ kg}^{-1} \text{ s}^{-2}$
- d) $6.6 \times 10^{11} \text{ cm}^3 \text{ kg}^{-1} \text{ s}^{-2}$

115. The diffraction process shows which nature of light?

- a) The particle nature of light
- b) The electric nature of light
- c) **The wave nature of light**
- d) The magnetic nature of light

116. The cannelure is

- a) Crimping at bullet mouth
- b) Crimping at cartridge case base to firmly secure bullet
- c) **Crimping at cartridge case mouth to firmly secure bullet**
- d) Crimping at cartridge case centre to firmly secure bullet

117. Fireflies are example of

- a) Phosphorescence
- b) **Bioluminescence**
- c) Fluorescence
- d) Luminescence

118. The Gamma rays cannot be stopped by

- a) Water
- b) Lead
- c) Concrete
- d) **Human body**

119. Raman effect tells that

- a) Light can be scattered by molecules of gas
- b) Light can be scattered by molecules of liquid
- c) Light can be scattered by molecules of solid
- d) **All of the above**

120. De-interlacing in video files is

- a) Conversion of interlaced video content into regressive video content
- b) **Conversion of interlaced video content into progressive video content**
- c) Conversion of interlaced video content into analog video content
- d) None of the above