

FORENSIC SCIENCE
(FINAL)

1. The good absorber of heat is
 - (A) non-emitter
 - (B) poor-emitter
 - (C) good-emitter
 - (D) highly polished

2. A constant volume air thermometer works on
 - (A) Pascal law
 - (B) Charles law
 - (C) Boyles law
 - (D) Archimedes principle

3. Scanning Tunneling Microscope can be used to map the
 - (A) magnetic properties
 - (B) electronic properties
 - (C) internal structural properties
 - (D) surface topography with atomic resolution

4. Two waves are said to be coherent when they
 - (A) maintain crest to crest and trough to trough correspondence
 - (B) originate at the same point
 - (C) diverge at single point
 - (D) have same frequency

5. An electric motor converts
 - (A) electrical energy into heat energy
 - (B) electrical energy into mechanical energy
 - (C) mechanical energy into electrical energy
 - (D) mechanical energy into heat energy

6. The leakage current in across a *pn*-junction is due to
 - (A) minority carriers
 - (B) majority carriers
 - (C) junction capacitance
 - (D) junction potential

7. The radiations emitted by a hot furnace are in
- (A) ultraviolet region
 - (B) infrared region
 - (C) microwave region
 - (D) x-ray region
8. An atom with electronic configuration $1s^2 2s^3$ is forbidden by
- (A) Hund's rule
 - (B) The Pauli exclusion principle
 - (C) Conservation of angular momentum
 - (D) The uncertainty principle
9. When the IC 555 timer is connected as an oscillator, the charging time t_1 of a Capacitor is $1.386 \mu s$ and discharging time t_2 of the capacitor is $0.693 \mu s$. The Duty cycle of the waveform is
- (A) 3.33 %
 - (B) 0.33 %
 - (C) 33.3 %
 - (D) 333 %
10. When the pentavalent element is doped into silicon, then the majority charge carriers are
- (A) holes
 - (B) electrons
 - (C) neutrons
 - (D) both electrons and holes
11. In a negative logic, the binary '0' stands for
- (A) High voltage
 - (B) Low voltage
 - (C) Zero voltage
 - (D) Neutral voltage
12. Which one of the following is the Computer Language?
- (A) UNIX
 - (B) Windows
 - (C) C++
 - (D) Linux

13. Microtron is an
- (A) proton accelerator
 - (B) neutron accelerator
 - (C) electron accelerator
 - (D) positron accelerator
14. In a four factor formula, if $k = 1$, then the system is said to be in a
- (A) super critical state
 - (B) critical state
 - (C) sub critical state
 - (D) under critical state
15. In the Bragg's law for X- ray diffraction, $2d \sin \theta = n\lambda$, ' d ' is
- (A) wave length of X-ray
 - (B) Interplanar spacing
 - (C) density of the crystal
 - (D) diameter of the crystal
16. If the semiconductor Ge is doped with trivalent impurity then the acceptor levels are formed
- (A) near conduction band
 - (B) half way between conduction band and valance band in the band gap
 - (C) just above valance band
 - (D) below the valance band
17. The energy required to remove an electron from sodium metal is 2.3 eV and sodium exhibit photoelectric effect from the orange light of wave length of 2800 Å. The energy carried by each photon of radiation is
- (A) 3.3 eV
 - (B) 2.7 eV
 - (C) 3.0 eV
 - (D) 4.43 eV
18. The measurement of Hall voltage helps us to know
- (A) the sign of the predominant charge carriers
 - (B) the charge depth
 - (C) the surface charge concentration
 - (D) the resistance

19. Which one of the following is an indirect band gap semiconductor?
- (A) Si
 - (B) GaAs
 - (C) InP
 - (D) GaP
20. If Δx and Δp represents the uncertainties in position x and momentum p of a particle respectively, then the uncertainty principle states that $\Delta x \cdot \Delta p \approx$
- (A) $\frac{h}{2\pi}$
 - (B) $\frac{\pi}{2h}$
 - (C) $2\pi k$
 - (D) 2π
21. The ground state energy of the hydrogen atom is
- (A) -13.6 eV
 - (B) 13.6 eV
 - (C) 136 eV
 - (D) 1.36 eV
22. The He – Ne laser is a
- (A) two level system
 - (B) three level system
 - (C) four level system
 - (D) five level System
23. In the electromagnetic spectrum, the wave length region used for optical fiber communication is
- (A) $0.8 \mu\text{m} - 1.7 \mu\text{m}$
 - (B) $3 \text{ cm} - 0.3 \text{ cm}$
 - (C) $0.3 \text{ nm} - 30 \text{ nm}$
 - (D) $3 \text{ cm} - 3 \text{ m}$

24. The op-amp has a differential voltage gain of 1200 and common mode gain of 1.5. Then, the CMRR of op-amp is
- (A) 1200
 - (B) 1.5
 - (C) 800
 - (D) 1800
25. Positive feedback is used in
- (A) Oscillators
 - (B) Amplifiers
 - (C) Rectifiers
 - (D) Detectors
26. When the temperature of a liquid is raised, its refractive index
- (A) remains same
 - (B) disappears
 - (C) increases
 - (D) decreases
27. The image seen through a compound microscope is
- (A) Real
 - (B) Imaginary
 - (C) Virtual
 - (D) False
28. In which of the following techniques Spin-spin coupling is observed?
- (A) NMR
 - (B) Mass spectrometry
 - (C) Raman Spectroscopy
 - (D) Neutron Activation Analysis
29. In XRF spectrometry, the excitation source is
- (A) Neutron gun
 - (B) Electron Gun
 - (C) X-ray tube
 - (D) Proton gun

30. Assertion (A) : The shifting of NMR signals is known as 'chemical shift'
Reason (R) : The 'chemical shifts' occur due to shielding and de-shielding by electrons

Which among the following options is correct?

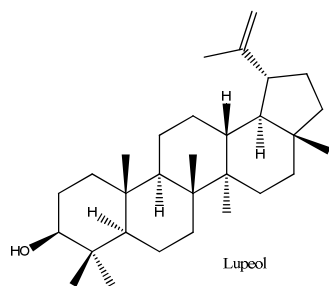
- (A) (A) is incorrect, but (R) is correct
(B) Both (A) and (R) are correct
(C) Both (A) and (R) are incorrect
(D) (A) is correct, but (R) is incorrect
31. A compound is formed by X and Y. Atoms of Y makes FCC and those of X occupy all the octahedral voids. The formula of the compound is
- (A) X_2Y_3
(B) X_3Y_2
(C) XY
(D) X_4Y
32. For a simple cubic crystal, X-ray diffraction shows intense reflection for angles θ_1 and θ_2 which are assigned to (101) and (111) planes respectively. The ratio of $\sin\theta_1$ and $\sin\theta_2$ is
- (A) 1.5
(B) 1.22
(C) 0.82
(D) 0.67
33. The spectroscopic term symbol of $[\text{Ti}(\text{H}_2\text{O})_6]^{2+}$ is
- (A) 2D_0
(B) 3F_2
(C) 2T_g
(D) 3S_0
34. The equivalent conductivity at infinite dilution (λ_∞) for sodium acetate, hydrochloric acid and sodium chloride is 78, 384 and 109 respectively. The λ_∞ of acetic acid would be
- (A) 187
(B) 493
(C) 353
(D) 571

35. If α is the amount of gas adsorbed per unit mass of adsorbent, k and n are constant that depend on the nature of adsorbent and adsorbate, Freundlich adsorption isotherm is
- (A) $\alpha = kC^n$
 - (B) $k = \alpha C^n$
 - (C) $1/\alpha = k C^n$
 - (D) $k = \alpha C^n$
36. The work done by the system W for the isothermal reversible expansion of 1 mole of an ideal gas, from an initial pressure of 1.0 bar to a final pressure of 0.1 bar at constant temperature of 273 K is
- (A) -5227 J
 - (B) $+5227 \text{ J}$
 - (C) $+4880 \text{ J}$
 - (D) -4880 J
37. The number of moles of NH_4Cl that should be added with 1 L of 1M NH_4OH for preparing a buffer solution of $\text{pH} = 9$ is [$K_b = 1.8 \times 10^{-5}$]
- (A) 2.2 moles
 - (B) 4.6 moles
 - (C) 3.2 moles
 - (D) 1.8 moles
38. The number of lines in the epr spectrum of $[\text{Ti}(\text{H}_2\text{O})_6]^{3+}$ is ($I_{\text{Ti}} = 3/2, I_{\text{H}} = 1/2$)
- (A) 2
 - (B) 4
 - (C) 42
 - (D) 52
39. The equivalent operation of S_4^2 is
- (A) C_2^1
 - (B) i
 - (C) C_3^1
 - (D) C_4^1

40. A metal M gives four lines in its EPR spectrum. Nuclear spin of the metal is
- (A) $\frac{1}{2}$
 - (B) 1
 - (C) $\frac{3}{2}$
 - (D) 3
41. Among SF_4 , BF_4^- , XeF_4 and ICl_4^- the number of species with two lone pair of electrons on the central atom according to VSEPR theory is
- (A) 2
 - (B) 3
 - (C) 4
 - (D) 0
42. Carboxypeptidase is related with
- (A) Zn(II) and hydrolyses CO_2
 - (B) Zn(II) and hydrolyses peptide bonds
 - (C) Mg(II) and hydrolyses CO_2
 - (D) Mg(II) and hydrolyses peptide bonds
43. The concentration of a 0.5% (w/v) solution when expressed as mg mL^{-1} is
- (A) 0.005 mg mL^{-1}
 - (B) 0.05 mg mL^{-1}
 - (C) 0.5 mg mL^{-1}
 - (D) 5 mg mL^{-1}
44. The primary unit of chain silicate is
- (A) $(\text{SiO}_3)^{2-}$
 - (B) $(\text{Si}_2\text{O}_7)^{6-}$
 - (C) $(\text{Si}_4\text{O}_{11})^{6-}$
 - (D) $(\text{SiO}_4)^{4-}$
45. Jahn-Teller distortion is not present in
- (A) $[\text{CuCl}_6]^{4-}$
 - (B) $[\text{Cr}(\text{acac})_3]$
 - (C) $[\text{Co}(\text{CN})_6]^{4-}$
 - (D) None of the above

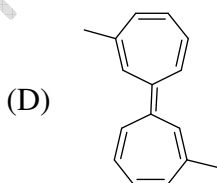
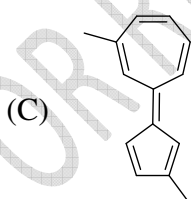
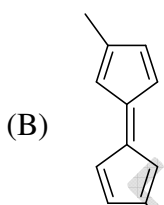
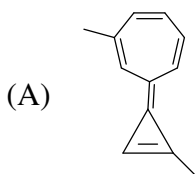
46. The structure of $B_{10}H_{14}$ is
- (A) closo
 - (B) nido
 - (C) arachno
 - (D) None of the above
47. The number of alpha(α) and beta(β) particles emitted in the conversion of ${}_{92}U^{238} \rightarrow {}_{82}Pb^{206}$ is
- (A) $2\alpha, 4\beta$
 - (B) $4\alpha, 4\beta$
 - (C) $6\alpha, 4\beta$
 - (D) $8\alpha, 6\beta$
48. ${}^{19}F$ -NMR shows signals for ClF_3
- (A) 1
 - (B) 2
 - (C) 3
 - (D) 4
49. Which of the following octahedral complexes would you expect to exhibit optical isomerism?
- (A) $[Cr(OH)(NH_3)_5]^{2+}$
 - (B) $[CrCl_4(en)]^-$
 - (C) $[Cr(en)_3]^{3+}$
 - (D) $[Cr(NH_3)_4Cl_2]^+$
- en = ethylenediamine
50. The order of energy of d orbitals in a complex is $d_{x^2-y^2} > d_{xy} > d_{z^2} > d_{xz} = d_{yz}$. The complex has the following structure
- (A) trigonal
 - (B) square pyramidal
 - (C) tetrahedral
 - (D) square planar

51. Number of isoprene units present in lupeol ($C_{30}H_{50}O$) is

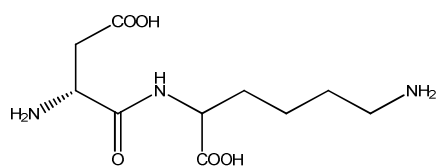


- (A) 2
- (B) 4
- (C) 6
- (D) 8

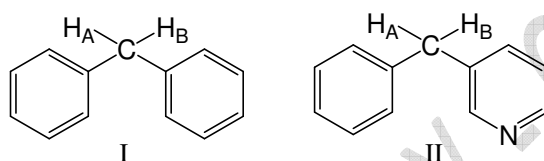
52. Cycloheptatrienyl cation, cyclopentadienyl anion and cyclopropenyl cation are aromatic while cycloheptatrienyl anion, cyclopentadienyl cation and cyclopropenyl anion are antiaromatic. Based on this information pick the compound amongst the following that has the lowest energy barrier for the cis-trans isomerization around the exocyclic double bond.



53. The C- and N-terminal amino acids in the following dipeptide, are

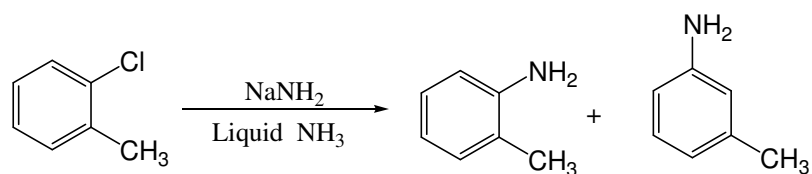


- (A) aspartic acid and lysine respectively
(B) lysine and aspartic acid respectively
(C) aspartic acid and arginine respectively
(D) arginine and lysine acid respectively
54. The two benzylic hydrogens H_A and H_B in the compounds I and II are



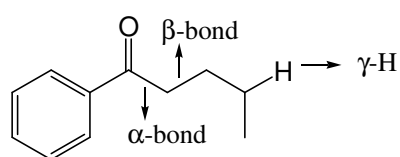
- (A) diastereotopic in I and enantiotopic in II
(B) homotopic in I and enantiotopic in II
(C) diastereotopic in both I and II
(D) enantiotopic in both I and II
55. Polymer which does not have amide linkages is
- (A) Nylon-6,6
(B) Aramid
(C) Nylon-6
(D) Melamine formaldehyde resin
56. In the ¹H NMR spectrum of 1,4-dimethylbenzene two signals are obtained at δ7.05 and 2.30. Pick the correct statement for these signals.
- (A) Signals appearing at δ7.05 and 2.30 are in a 4:6 ratio
(B) Signal appearing at δ7.05 is a doublet while that appearing at δ2.30 is a singlet
(C) Both signals appear as multiplets
(D) Signal appearing at δ7.05 is a triplet while that appearing at δ2.30 is a singlet

57. Intermediate involved in the following reaction is



- (A) aryne
- (B) aryl cation
- (C) aryl anion
- (D) aryl radical

58. Norrish Type 2 reaction of valerephenone involves



- (A) γ -H abstraction followed by cleavage of α -bond
- (B) γ -H abstraction followed by cleavage of β -bond
- (C) γ -H abstraction followed by dimerization
- (D) α -bond cleavage followed by radical coupling

59. Which among the following reactions proceeds through an intermediate?

- (A) Diels Alder reaction between 1,3-butadiene and ethene
- (B) E2 elimination
- (C) $\text{S}_{\text{N}}2$ substitution
- (D) Addition of bromine to cyclohexene to give 1,2-dibromocyclohexane

60. Cyclobutane is obtained as the major product in

- (A) photochemical activation of ethene
- (B) thermal activation of ethene
- (C) reaction of 1,2-dibromoethane with sodium metal in diethyl ether at high concentration
- (D) reaction of 1,4-dibromobutane with sodium metal in diethyl ether at high concentration

61. Elasticity in plants is due to

- (A) Parenchyma
- (B) Collenchyma
- (C) Sclerenchyma
- (D) Phloem

62. In which form is Ca^{2+} present in plants?
- (A) CaCl_2
 - (B) CaSO_4
 - (C) Calcium pectate
 - (D) CaCO_3
63. Pneumatic boxes are found in
- (A) Reptiles
 - (B) Mammals
 - (C) Birds
 - (D) Fishes
64. A cross between heterozygous progeny with its homozygous parent is known as
- (A) Effective cross
 - (B) Back cross
 - (C) Pare cross
 - (D) Forward cross
65. Cystic fibrosis disorder is
- (A) Autosomal dominant
 - (B) Sex-linked recessive
 - (C) Sex-linked dominant
 - (D) Autosomal recessive
66. The most dramatic example of actin-myosin contraction in non muscle cells is provided by
- (A) Calmodulin
 - (B) Cytokinesis
 - (C) Unconventional myosins
 - (D) Vimentin
67. The small peaks formed by repetitive DNA during density gradient centrifugation based DNA fingerprinting are called
- (A) Satellite DNA
 - (B) Histone DNA
 - (C) Trough
 - (D) Non repetitive DNA

68. Which of the following is considered as a missing link between reptiles and birds?
- (A) Caudipteryx
 - (B) Avimimus
 - (C) Pteranodon
 - (D) Archaeopteryx
69. A bioinformatics tool used for the identification of conserved regions or motifs is
- (A) PROSPECT
 - (B) BLAST
 - (C) Patternhunter
 - (D) COPIA
70. Juvenile hormone (JH) is a terpene secreted by
- (A) Corpora cardiaca
 - (B) Cuticle of the insects
 - (C) Accessory glands
 - (D) Corpora allata
71. Which one of the following statements is **NOT** correct for honeybees and beehives?
- (A) Every beehive has one queen bee that lays egg
 - (B) There are only a few males in the hive
 - (C) Most of the bees in the hive are worker bees
 - (D) Male bees are very important for the hives
72. A mutation which results in a protein in which one amino acid is substituted for another is called
- (A) point mutation
 - (B) missense mutation
 - (C) nonsense mutation
 - (D) frameshift mutation
73. Fossils which are employed to trace the relative age of rocks is
- (A) Prehistoric fossils
 - (B) Index fossils
 - (C) Secondary fossils
 - (D) Primary fossils

74. Stony pieces of fossils found in an animal's stomach are called
- (A) ammonites
 - (B) otoliths
 - (C) coprolites
 - (D) gastrolith
75. Which of the following amino acids is aliphatic and non-polar?
- (A) tyrosine
 - (B) histidine
 - (C) glutamic acid
 - (D) leucine
76. The most abundant protein in the human body is
- (A) haemoglobin
 - (B) keratin
 - (C) collagen
 - (D) immunoglobulin
77. Immunoglobulins are secreted by
- (A) Neutrophils
 - (B) Basophils
 - (C) B-lymphocytes
 - (D) T-lymphocytes
78. Which of the following organelles is not bound by a double membrane?
- (A) Nucleus
 - (B) Lysosome
 - (C) Mitochondria
 - (D) Chloroplast
79. Leukopenia is the term used to describe
- (A) High platelet count
 - (B) High WBC count
 - (C) Low WBC count
 - (D) Low RBC count

80. The characteristics unique to DNA are
- (A) Splicing and translation
 - (B) Denaturation and renaturation
 - (C) Replication and transcription
 - (D) All of the above
81. The melting temperature (T_m) of DNA is
- (A) directly proportional to the length of the DNA chain
 - (B) directly proportional to the GC content
 - (C) directly proportional to the AT content
 - (D) not related to the base composition
82. The confirmatory test to distinguish between monosaccharides and disaccharides is
- (A) Benedict test
 - (B) Barfoed test
 - (C) Seliwanoff test
 - (D) Biuret test
83. The enzyme that catalyzes the conversion of glucose to fructose is
- (A) Hydrolase
 - (B) Transferase
 - (C) Isomerase
 - (D) Oxidoreductase
84. Thiamine deficiency leads to
- (A) Scurvy
 - (B) Pellagra
 - (C) Night blindness
 - (D) Beri-beri
85. Which of the following locomotory organ of *Pheretima posthuma*?
- (A) Parapodia
 - (B) Podia
 - (C) Setae
 - (D) Tube feet

86. Addison's disease is caused due to the deficiency of hormones of
- (A) Pituitary
 - (B) Adrenal
 - (C) Thyroid
 - (D) Pancreas
87. Who wrote the book "The Origin of Species"?
- (A) Jean-Baptiste Lamarck
 - (B) Charles Darwin
 - (C) Carolus Linnaeus
 - (D) Hugo de Vries
88. Regeneration of tail in lizard is an example of
- (A) Morphogenesis
 - (B) Parthenogenesis
 - (C) Epimorphosis
 - (D) Heteromorphosis
89. The middle piece of a mammalian sperm contains
- (A) Nucleus
 - (B) Centrioles
 - (C) Mitochondria
 - (D) Chromosomes
90. Which of the following is an example of Mendelian disorder?
- (A) Down syndrome
 - (B) Turner syndrome
 - (C) Phenylketonuria
 - (D) Edward syndrome
91. Sciatic Notch index is useful in determination of
- (A) Age
 - (B) Race
 - (C) Sex
 - (D) Stature

92. Optical component of UV spectrometer is made up of
- (A) Glass
 - (B) Quartz
 - (C) Paper
 - (D) Plastic
93. Chemical test used to detect Seminal Stain is
- (A) Florence test
 - (B) Teichmann test
 - (C) Takayama test
 - (D) Precipitin test
94. Poison acts more rapidly when
- (A) Inhaled in gaseous state
 - (B) Injected intramuscularly
 - (C) Injected subcutaneously
 - (D) Injected intraarterial
95. Which of the following survey method is used in investigation of air crash disaster?
- (A) Strip Method
 - (B) Spiral method
 - (C) Wheel Method
 - (D) Zonal method
96. Reagents used in Kastle-Meyer test **DOES NOT** include
- (A) Glacial Acetic Acid
 - (B) Phenolphthalein
 - (C) Potassium Hydroxide
 - (D) Zinc dust
97. The sequence of post-mortem changes in a cadaver includes
- (A) Rigor mortis, primary flaccidity, secondary flaccidity, marbling
 - (B) Primary flaccidity, secondary flaccidity, rigor mortis, marbling
 - (C) Marbling, secondary flaccidity, primary flaccidity, rigor mortis
 - (D) Primary flaccidity, rigor mortis, secondary flaccidity, marbling

98. Setting up a web site to anonymously air his or her grievances in the airspace is known as
- (A) Cyber defamation
 - (B) Cyber venting
 - (C) Cyber stalking
 - (D) Cyber squatting
99. Widmark's formula is used for measuring the amount of
- (A) Ethyl alcohol
 - (B) Arsenic
 - (C) Barbiturates
 - (D) Benzodiazepines
100. The word forensic has been derived from
- (A) French
 - (B) Greek
 - (C) Latin
 - (D) Spanish
101. Abrasion collar is seen in
- (A) Entry wound of rifled firearm
 - (B) Exit wound of rifled firearm
 - (C) Entry wound of shot gun
 - (D) Exit wound of shot gun
102. Smokeless gun powder contains
- (A) Charcoal
 - (B) Nitrocellulose
 - (C) Potassium nitrate
 - (D) Sulphur
103. Sodium amytal, which is used as a truth serum for narco-analysis belongs to group of drugs
- (A) Benzodiazepines
 - (B) Barbiturates
 - (C) Scopolamine
 - (D) Narcotics

104. Soil that are essentially under strong human influence in urban and suburban areas is
- (A) Anthropogenic soils
 - (B) Pedological soils
 - (C) Petrographical soils
 - (D) Hematite soils
105. Hair formed in the embryo as the first product of follicular development is
- (A) Lanugo hair
 - (B) Vellus hair
 - (C) Terminal hair
 - (D) Fuzz hair
106. National Crime Records Bureau was established in the year
- (A) 1975
 - (B) 1981
 - (C) 1986
 - (D) 1991
107. A document entirely written and signed by the same person is known as
- (A) Holograph
 - (B) Genuine document
 - (C) Pilcrow
 - (D) Recto document
108. Under which of the following section of the Wildlife (Protection) Act, 1972, a wild animal shall be Government property?
- (A) 23 (2)
 - (B) 13
 - (C) 54
 - (D) 39 (1)
109. Admissibility of electronic records is mentioned in which of the following section of Indian Evidence Act, 1872
- (A) 63 A and B
 - (B) 64 A and B
 - (C) 65 A and B
 - (D) 66 A and B

110. The sodium rhodizonate test is a spot test for the detection of
- (A) Lead
 - (B) Nitrite
 - (C) Propellant particles
 - (D) Copper and Nickel
111. A bloodstain pattern with a preponderance of diameters of less than 1 millimeter, may be due to
- (A) Low-velocity impact
 - (B) High-velocity impact
 - (C) Medium-velocity impact
 - (D) Very low-velocity impact
112. A dead body was recovered from a forest. It was ascertained that the murder has taken place at some other place and the body was thrown into the forest. This type of crime scene is better known as
- (A) Primary crime scene
 - (B) Secondary crime scene
 - (C) Tertiary crime scene
 - (D) Quaternary crime scene
113. Which of the following lens should be avoided while taking overall photographs of a crime scene?
- (A) Normal focal length lens (50mm)
 - (B) Normal focal length lens (55mm)
 - (C) Telephoto lens
 - (D) Moderate wide-angle lens
114. The intensity of the Rayleigh line is proportional to
- (A) Square root of the molecular polarizability
 - (B) Square of the induced dipole moment
 - (C) Square root of the induced dipole moment
 - (D) Square of the molecular polarizability
115. Which of the following is not a scanning probe microscope?
- (A) Jet desorption ionization (JeDI)
 - (B) Atomic Force Microscope (AFM)
 - (C) Scanning Tunnelling microscope (STM)
 - (D) Near-field scanning optical microscope (NSOM)

116. Which of the following is the exogenous cannabinoid present in Cannabis sativa?
- (A) Tetrahydrocannabinol
 - (B) Anandamide
 - (C) Glutamate
 - (D) Gamma Hydroxy Butyrate
117. Fire extinguished by water removes which part of the fire triangle?
- (A) Oxygen
 - (B) Fuel
 - (C) Heat
 - (D) Gradient
118. The act of electronically disguising one computer as another for gaining access to a restricted system is known as
- (A) Electronic eavesdropping
 - (B) Password sniffing
 - (C) Spoofing
 - (D) Identity theft
119. According to Henry's primary classification, the fingerprint of an individual may be classified in which of the following possible ways?
- (A) 32
 - (B) 64
 - (C) 256
 - (D) 1024
120. Who is the first person to identify vegetable poisons in body tissue successfully?
- (A) Jean S. Stas
 - (B) James Marsh
 - (C) Mathieu Orfila
 - (D) Thomas Bewick
121. The layer is responsible for the source to destination delivery of a packet across multiple network links.
- (A) datalink
 - (B) network
 - (C) transport
 - (D) physical

122. In the IPV4 packet, the value of HLEN is 1000 binary. How many bytes of options are being carried by this packet?
- (A) 12
 - (B) 32
 - (C) 20
 - (D) 8
123. Which of the following is a non-preemptive scheduling policy?
- (A) FCFS
 - (B) Round Robin
 - (C) Shortest remaining time next
 - (D) Both (A) and (B)
124. In the case of direct mapping, the page table is kept in the
- (A) main memory
 - (B) associative memory
 - (C) secondary memory
 - (D) read only memory
125. Which one of the following is **NOT** a data mining technique?
- (A) Association rule mining
 - (B) Support vector machine
 - (C) Object ranking
 - (D) Naive Bayes classification
126. Three frequent pairs (p, q), (r, s) and (t, u) have been found in association rule mining. What is the maximum number of rules that may be derived from these three pairs?
- (A) 3
 - (B) 4
 - (C) 6
 - (D) 8
127. The semantic and syntax errors in the program are checked in
- (A) coding phase
 - (B) testing phase
 - (C) implementation phase
 - (D) analysis phase

128. The octal equivalent of the decimal number 97 is
- (A) 97
 - (B) 140
 - (C) 41
 - (D) 141
129. model puts together infrastructures demanded by users namely servers, storage, networks and the data center fabric.
- (A) IaaS
 - (B) PaaS
 - (C) SaaS
 - (D) MaaS
130. layer provides resource broker, communication service, task analyzer, task scheduler, security access, reliability control and information service capabilities.
- (A) Resource
 - (B) Application
 - (C) Network
 - (D) Middleware
131. How many S-boxes are used in DES algorithm?
- (A) 8
 - (B) 10
 - (C) 1
 - (D) 16
132. During tunneling from the home agent(HA) to the foreign agent(FA), minimum encapsulation(ME) combines encapsulation header and IP header words into
- (A) seven or eight words
 - (B) five words
 - (C) six words and checksum of the header
 - (D) six words and checksum of the packet through the tunnel
133. A binary tree is called perfectly balanced, if each node has a left and a right subtree in which the number of nodes differ by at most
- (A) 3
 - (B) 2
 - (C) 1
 - (D) 0

134. Fast hardware multiplication units in high performance processors are based on designs.
- (A) array multiplier
 - (B) partial product
 - (C) tree multiplier
 - (D) shift register
135. Which of the following is **NOT** a mobile system network?
- (A) Cellular network
 - (B) WAN
 - (C) WLAN network and mobile IP
 - (D) Ad-hoc networks
136. The Protocol Data Unit for the Transport Layer in the Internet Stack is
- (A) Segment
 - (B) Message
 - (C) Datagram
 - (D) Frame
137. How many check bits are required for 16-bit data word to detect 2-bit errors and single bit error correction using hamming code?
- (A) 5
 - (B) 6
 - (C) 7
 - (D) 8
138. A mechanism used in ethernet by which two connected devices choose common transmission parameters such as speed, duplex mode and flow control is called
- (A) Autosense
 - (B) Synchronization
 - (C) Pinging
 - (D) Auto Negotiation

139. If there are N people in the world and are using secret key encryption/decryption for privacy purpose, then number of secret keys required will be
- (A) N
 - (B) $(N-1)$
 - (C) $\frac{N(N-1)}{2}$
 - (D) $\frac{N(N+1)}{2}$
140. Using the RSA public key cryptosystem, if $p=13$, $q=31$ and $d=7$, the value of e is
- (A) 101
 - (B) 103
 - (C) 105
 - (D) 107
141. Which one of these is **NOT** an advantage of Hierarchical Data Model?
- (A) Simplicity
 - (B) Available Expertise
 - (C) Data Integrity and Security
 - (D) Application Programming Complexity
142. When data changes in multiple lists and all lists are not updated, this causes
- (A) Data Redundancy
 - (B) Data Inconsistency
 - (C) Information Overload
 - (D) Duplicate Data
143. is a method or a protocol of controlling concurrent processing in which all locking operations precede the first unlocking operation
- (A) Binary Locking
 - (B) Exclusive Locking
 - (C) Shared Locking
 - (D) Two-Phase Locking

144. causes invalid or corrupted data, which may seriously affect the operation of an organization
- (A) Loss of Confidentiality
 - (B) Loss of Privacy
 - (C) Loss of Data Integrity
 - (D) Accidental Losses
145. When all the columns (attributes) in a relation describe and depend upon the primary key, the relation is said to be in
- (A) 1NF
 - (B) 2NF
 - (C) 3NF
 - (D) 4NF
146. The objective of phase of query processing is to reduce the number of predicates that must be evaluated by refuting incorrect or contradictory queries or qualifications
- (A) Semantic Analyzer
 - (B) Query Normalization
 - (C) Query Simplifier
 - (D) Query Restructuring
147. software uses non numerical algorithms, which use the data and information generated in the system to solve complex problems
- (A) Embedded
 - (B) Artificial Intelligence
 - (C) Engineering and Scientific
 - (D) System
148. measures the average time it takes to track the errors causing the failure and then to fix them
- (A) Mean Time to Failure (MTTF)
 - (B) Mean Time to Repair (MTTR)
 - (C) Mean Time Between Failures (MTBF)
 - (D) Probability of Failure on Demand (POFOD)

149. Equivalence partitioning is a method that divides the input domain of a program into classes of data from which test cases can be derived
- (A) Black Box Testing
 - (B) White Box Testing
 - (C) Stress Testing
 - (D) Orthogonal Array Testing
150. testing is the activity that helps to ensure that changes (due to testing or for other reasons) do not introduce unintended behavior or additional errors
- (A) Regression
 - (B) Smoke
 - (C) Sandwich Integration
 - (D) Unit

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FINAL ANSWER KEY**Subject Name: MSc FORENSIC SCIENCE**

SI No.	Key	SI No.	Key	SI No.	Key	SI No.	Key	SI No.	Key
1	C	31	C	61	A	91	C	121	B
2	B	32	C	62	C	92	B	122	A
3	D	33	B	63	C	93	A	123	A
4	A	34	C	64	B	94	A	124	A
5	B	35	A	65	D	95	C	125	C
6	A	36	A	66	B	96	A	126	C
7	B	37	D	67	A	97	D	127	B
8	B	38	D	68	D	98	B	128	D
9	C	39	A	69	D	99	A	129	A
10	B	40	C	70	D	100	C	130	D
11	A	41	A	71	D	101	A	131	A
12	C	42	B	72	B	102	B	132	A
13	C	43	D	73	B	103	B	133	C
14	B	44	A	74	D	104	A	134	C
15	B	45	B	75	D	105	A	135	B
16	C	46	B	76	C	106	C	136	A
17	D	47	D	77	C	107	A	137	B
18	A	48	B	78	B	108	D	138	D
19	A	49	C	79	C	109	C	139	C
20	A	50	D	80	C	110	A	140	B
21	A	51	C	81	B	111	B	141	D
22	C	52	C	82	C	112	B	142	B
23	A	53	B	83	C	113	C	143	D
24	C	54	B	84	D	114	D	144	C
25	A	55	D	85	C	115	D	145	C
26	D	56	A	86	B	116	A	146	A
27	C	57	A	87	B	117	C	147	B
28	A	58	B	88	C	118	C	148	B
29	C	59	D	89	C	119	D	149	A
30	B	60	A	90	C	120	A	150	A