

Q. No	Question	Correct Ans	Option1	Option2	Option3	Option4
1	When force is applied on plate glass, the radial fractures initially appear on:	The side opposite to the side at which force makes impact	The same side at which the force makes impact	Both the sides of glass	The side opposite to the side at which force makes impact	The edge of glass
2	A suitable screening method for determining the adulteration in cement is:	Density distribution of particles	Particle size distribution	Density distribution of particles	Bunsen Flame Test	Atomic Absorption Spectrometry
3	When force is applied on window pane glass, the rib marks on radial cracks are observed :	Parallel to the side opposite of side on which force was applied	Perpendicular to the side on which force was applied	Parallel to the side on which force was applied	Parallel to the side opposite of side on which force was applied	Inclined to the side opposite the side on which force was applied
4	The best technique to determine the most common link of the two glass pieces; one found at the scene of crime and the other from the vehicle's broken glass portions retained in original position in the suspect vehicle will be:	The Physical Fitness Matching Technique	The physical measurements such as Colour, Length, Width, Thickness	The Density measurements	The Physical Fitness Matching Technique	The Refractive Index Determination
5	Which of the following evidence can be successfully analysed for trace elements characterisation using ICP - Atomic Emission Spectrophotometer?	Glass fragments and mutilated bullets	Glass fragments and paint chips	Paint chips and soil samples	Glass fragments and mutilated bullets	Mutilated bullets and paint chips
6	Which of the excitation techniques of emission spectrometry will give accurate analysis of layer-wise elemental composition in the multi-layer paint chip sample?	Laser beam	Arc	Spark	Laser beam	UV source
7	For a compound microscope the 'empty magnification' is:	A magnification more than the maximum magnification	The maximum useful magnification	A magnification less than the maximum magnification	A magnification more than the maximum magnification	Half of the maximum magnification
8	Choose the correct sequence of components of an Atomic Absorption Spectrometer instrument.	Source-chopper-Flame-slit-monochromator-detector	Source-Flame-chopper-slit-monochromator- detector	Source- chopper- Flame-monochromator- slit- detector	Source-chopper-Flame-slit-monochromator-detector	Source- chopper-monochromator- Flame- slit-detector
9	In the Scanning Electron Microscope, the incident beam is focused by means of:	Electromagnets	Optical Lens	Mirrors	Electromagnets	Collimator
10	Polarising Microscope is preferably used in the identification of:	Fibre	Paper	Soil	Fibre	Paint

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11	Which is NOT correct in the case of Electron Microscope?	Lens made of flint glass is used	The electron beam is used to illuminate the object	Lens made of flint glass is used	Auxiliary instrument such as Microtome Slide Cutting apparatus and a freeze-drying apparatus are NOT required	Resolving power is more than optical microscope
12	Which component on a light microscope should be focused first?	The two eye pieces	The two eye pieces	Objective lenses	Condenser	Revolving nosepiece
13	In order to compare two samples of soil by density gradient distribution of particles, the density gradient tubes are prepared using systemic ratios of the mixture of the two liquids namely:	Bromoform : Xylene	Bromoform : Methylene Iodide	Bromoform : Xylene	Kerosene : Xylene	Nitrobenzene : Bromobenzene
14	Infrared spectrophotometry is used to provide information about which ingredient of paint?	Binder	Binder	Inorganic pigment	Binder and inorganic pigment	Extender
15	Of the following, which is the best method for analysis of organic components in paints?	Infrared absorption spectrophotometry	Atomic absorption spectrophotometry	Ultra violet absorption spectrophotometry	Infrared absorption spectrophotometry	Nuclear Magnetic Resonance
16	Uncertainty in the measurement is due to:	Both Random and Systematic error	Probability of error	Unable to measure correctly	Both Random and Systematic error	Standard error contributed only by random error
17	Identify the WRONG statement.	Mould of the tool marks is negative replica of tool	Tool marks are the marks left by various irregularities on acting surface of tool	Mould of the tool marks is negative replica of tool	Mould of tool mark cannot be directly compared with irregularities on tool	Some tool marks can be directly compared with some peculiar individual characteristics on tool
18	A plaster cast of tyre tread evidence is made. However, photograph of the tread is taken before the cast is made because:	The tread evidence may be damaged in the process of casting	Photograph can be duplicated more easily than casting	Less skill is required for photography than casting	Photographs are more easily transported than casting	The tread evidence may be damaged in the process of casting
19	The auditory methods in speaker identification is termed as:	Subjective method	Objective method	Subjective method	Subjective as well as objective method	Closed test
20	The clue words for comparison for speaker identification test is:	Best selected from verbatim words	Best selected from verbatim words	Best selected from non-verbatim words	Best selected from dissimilar words	Best selected in random

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21	The Speech spectrograph Machine used in voice print method for speaker identification was invented in Bell laboratories in the year range:	1941 to 1950	1941 to 1950	1931 to 1940	1961 to 1970	1981 to 1990
22	In vehicular crash collision, the second collision occurs,	When passengers in a vehicular collision collide with their own vehicle	When passengers in a vehicular collision collide with their own vehicle	When two cars collide with each other	When two objects scrape against each other, reducing velocity	When a moving vehicle collides with a stationary object
23	Which driving surface would provide the greatest friction?	Dry pavement	Ice	Wet concrete	Dry pavement	Steel
24	What is the relationship between reaction time of driver and stopping distance in the roadway traffic?	When reaction time increases, stopping distance increases	When reaction time increases, stopping distance decreases	When reaction time increases, stopping distance increases	When reaction time decreases, stopping distance increases	Reaction time does NOT affect stopping distance
25	An erased stamped mark on Aluminium sheet can be restored by etching on application of a combination of chemicals namely:	Glycerin 30 ml, Nitric Acid 10 ml, HCl 20 ml	Ferric Chloride 19 gm, HCl 6 ml, Water 10ml	Glacial Acetic Acid 3 parts and Hydrogen Peroxide	Glycerin 30 ml, Nitric Acid 10 ml, HCl 20 ml	Sodium Hydroxide 10% solution in water
26	Up to what depth from top surface, the representative specimen soil samples are to be collected from the crime scene to demonstrate if the questioned soil from the suspect vehicle could have originated from the same source as that of the specimen soil samples of the scene of crime or otherwise?	Not more than 1.0 Centimeter depth	Not more than 1.0 Centimeter depth	Not more than 10.0 Centimeter depth	Not more than 20.0 Centimeter depth	Not more than 30.0 Centimeter depth
27	Which of the mineral is hardest as per Moh's scale of relative hardness?	Quartz	Apatite	Calcite	Quartz	Talc
28	The Particle Size Distribution of mud contents in the soil samples can be best determined by:	Laser Granulometry	Dry Sieving Technique	Laser Granulometry	Computer Image Analysis Technique	Hydrometer Method
29	The strongest evidence of association of two broken pieces of soil pottery is provided by:	Physical Fit combined with indistinguishable properties such as texture, mineralogy and chemical composition	Physical Fit	Presence of a number of unusual particles supported by similarity in physical and chemical characteristics	Presence of fragments from a single piece of home-made hand printed pottery	Physical Fit combined with indistinguishable properties such as texture, mineralogy and chemical composition
30	The Surface Area of soil sediments can be determined by a technique namely:	Nitrogen Gas Adsorption	Atomic Absorption Spectrometry	Inductively Coupled Plasma Spectrometry	Nitrogen Gas Adsorption	X-ray Diffraction

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31	What is the process of chemical reaction called for drying of a paint coat having Non-Oleous Synthetic Resins forming a solid film on an automobile surface?	The process of Polymerisation	The process of Oxidation	The process of Polymerisation	The process of coagulation	The process of evaporation
32	What process of chemical reaction takes place when an Oleo-resinous and alkyd vehicle of the paint forms a strong solid film coat after the paint is dried?	Oxidation	Oxidation	Polymerisation	Coagulation	Evaporation
33	When chips are present in the questioned paint sample found at the scene of crime in an automobile Hit and Run case and the suspect vehicles have been traced, what modes of non-destructive methods of paint comparison are to be studied for the Best Forensic Evidence Value?	Comparisons based on the Point to Point Physical Fit between questioned paint chips and suspect vehicle.	Comparisons based on the Point to Point Physical Fit between questioned paint chips and suspect vehicle.	Comparisons of paint chips based on Colour & Textures	Comparisons of paint chips based on Surface Markings, Layer Structure	Comparisons of paint chips based on Thickness of Each Layer, Colour Sequence of Different Layers
34	Which of the following sets of paint pigments are soluble in the concentrated Hydrochloric acid?	Mercury Cadmium Orange, Cadmium Red and Chrome Yellow	Mercury Cadmium Orange, Cadmium Red and Chrome Yellow	Biotite Mica, Muscovite Mica and Lead silicate White	Iron Titanate. Brown, Barium white and Cobalt Blue	Zirconium silica white, Graphite Black and Lead Titanate white
35	Which of the following sets of the paint pigments when added with a few drops of concentrated Hydrochloric Acid, produce Hydrogen Sulphide gas indicating presence of the said pigments?	Zinc Sulphide (white), Cadmium yellow (yellow), Vermilion (red) and Antimony Black (black)	Zinc Sulphide (white), Cadmium yellow (yellow), Vermilion (red) and Antimony Black (black)	White Lead (white), Zinc Yellow (yellow), Chromium Green (green) and Azurite Blue	Manganese White (white), Chrome Yellow (yellow), Molybdate Orange (orange)	Chrome Red (red), Bone White (white), Manganese White (white), Umber (brown) and Bone Black (black)
36	Which of the task is accomplished using a Comparison microscope?	It compares the topographical features of the two objects simultaneously at equal magnification and resolution and can make photographic record of side-by-side comparison	It improves the image resolution beyond the refraction limit of standard optical microscopes	It compares the topographical features of the two objects simultaneously at equal magnification and resolution and can make photographic record of side-by-side comparison	It compares the birefringence properties of fibre evidence	It can produce images with high magnification and resolution as well as can map the distribution of elements in the sample
37	Those tests of voice identification in which the examiner is told that the unknown voice sample may or may NOT be included among the known voice samples, is known as:	Open tests	Open tests	Closed tests	Discrimination tests	Verification test
38	In a forensic voice analysis, which one is the correct statement?	Speaker identification Technique is to identify the voice of an unknown speaker as one of the known sets of the voice samples by Forensic Audio Analyst	Speaker identification technique is to identify the voice of an unknown speaker as one of the known sets of the voice samples by Forensic Audio Analyst	Speaker identification Technique is called for Forensic Audio Analyst to identify the voice of a known speaker as one of the known sets of the voice samples	Speaker identification Technique is called for Forensic Audio Analyst to identify the voice of an unknown speaker as one of the unknown sets of the voice samples	Speaker identification Technique is called for Forensic Audio Analyst to identify the voice of an unknown speaker as one of the unknown sets of the voice samples
39	In the speech acoustics of the human voice, the fundamental frequency F_0 is generated due to:	Rate of Vocal fold vibrations	Higher dimension of Vocal cavity	Rate of Vocal fold vibrations	Higher mass of Vocal cord	Larger opening of Glottis
40	A breathy human voice is generated when:	The vocal cord vibration is NOT sufficient due to glottis NOT fully closed	Sound is produced through the turbulances due to friction in the air waves above the glottis	The vocal cord vibration is NOT sufficient due to glottis NOT fully closed	The vocal cord has sufficient tension	There is longitudinal stretch in the vocal cord

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41	Which quality of the voice sound refers to the phonetic quality of voice?	The quality of sound of voice that signals to the linguistic information	The sound quality determined by speaker's vocal tract anatomy	The quality of sound of voice that signals to the linguistic information	The upper and lower limits of the speaker's fundamental frequencies range	The articulatory settings of individual speaker
42	What is the limit of Resolution of an optical microscope with a visible light source in the Air medium?	300 Nanometer range	400 Nanometer range	300 Nanometer range	200 Nanometer range	100 Nanometer range
43	The fracture lines moving outward on a glass from a point are known as:	Radial fracture	Concentric fracture	Radial fracture	Annealing	Annealing with concentric fracture
44	Which of the followings is good for heat conductivity and bad for electrical conductivity?	Mica	Diamond	Mica	Granite	Graphite
45	Which of the following glass is easy to melt and shape?	Lead glass	Quartz glass	Soda lime glass	Lead glass	Borosilicate glass
46	Penetration of a high velocity projectile such as bullet on a glass will produce a coning effect namely:	Leaving a crater with the larger opening on the exit side	Leaving a crater with the smaller opening on the exit side	Leaving a crater with the larger opening on the exit side	Leaving a crater with the larger opening on the entry side	Will leave no crater on either side
47	Which one of the following attributes is pertinent to avoid type II errors, i.e. incorrectly attributing two float glass samples to a common source?	Trace element characterisation	Chemical composition	Density	Trace element characterisation	Refractive index
48	In synthetic fibers, the regular arrangement of polymers produces double refraction. The value of Birefringence of polyester fiber is:	0.175	0.005	0.175	0.032	0.053
49	Acetate is made from:	Wood pulp	Polyvinyl compounds	Soya beans	Wood pulp	Poly-ethylene glycol
50	The x-ray diffraction is a suitable technique for the identification of:	Major constituents of a mixture	Major constituents of a mixture	Minor constituents of a mixture	Trace constituents of a mixture	Ultra-trace constituents of a mixture

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51	X-ray diffraction patterns are used for studying crystal structure of solids because:	Their wavelengths are comparable to inter-atomic distances	They are electromagnetic radiation, and hence do NOT interact with crystals	Their wavelengths are comparable to inter-atomic distances	They have very high energy, hence they can penetrate through solids	Their high frequency enables rapid analysis
52	Minimum interplaner spacing required for Bragg's diffraction is:	$\lambda/2$	2λ	λ	$\lambda/2$	$\lambda/4$
53	In Bragg's equation ($n\lambda = 2.d.\sin\theta$), θ is the angle between:	Parallel lattice surfaces, 'd' distance apart and incident rays	Normal to specimen surface and incident rays	Specimen surface and incident rays	Parallel lattice surfaces, 'd' distance apart and incident rays	Normal to parallel lattice surfaces, 'd' distance apart and incident rays
54	The intensity of the fundamental vibrational absorption band is:	Proportional to the square of the rate of change of dipole moment with respect to displacement of atoms	Proportional to rate of change of dipole moment with respect to displacement of atoms	Proportional to the square of the rate of change of dipole moment with respect to displacement of atoms	Proportional to the under root of the rate of change of dipole moment with respect to displacement of atoms	Proportional to the change of dipole moment with respect to displacement of atoms
55	The element doped in YAG is:	Neodyum	Neodyum	Germanium	Nitrogen	Argon
56	The Principle of Atomic Absorption Spectrophotometer is:	The Absorption of energy by ground state atoms in the gaseous state	The Absorption of energy by excited state atoms in the gaseous state	The Absorption of energy by ground state atoms in the gaseous state	The Absorption of energy by both ground state and excited state atoms in the gaseous state	Absorption of heat energy from the flame by ground state atoms
57	Which interference does NOT occur in atomic absorption spectrometry	Spin-Spin coupling interference	Spectral interference	Chemical interference	Spin-Spin coupling interference	Ionising interference
58	Which one of the following is NOT used to manufacture Non Hydraulic cement?	Sulphoaluminate	Sulphoaluminate	Non-hydraulic lime	Gypsum plasters	Oxychloride
59	State the Indian Standards for "Methods of Physical Tests for Hydraulic Cement"?	IS: 4031-1988	IS: 4031-1988	IS: 4032-1985	IS: 650-1966	IS: 8042-1985
60	The order of processes involving in the manufacture of paint in ascending order is:	Resin → Dispersion → Blending → Thinning → Filling	Resin → Dispersion → Blending → Filling → Thinning	Dispersion → Blending → Filling → Resin → Thinning	Dispersion → Resin → Blending → Thinning → Filling	Resin → Dispersion → Blending → Thinning → Filling

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61	The extent of linear relationship between two variables is determined by:	Coefficient of determination	Coefficient of correlation	Coefficient of determination	Probable error	Standard error
62	From a statistical point of view, to conclude an individualisation means that the probability Pr of the event is:	Pr = 1	Pr > 1	Pr = 1	Pr < 1	Pr = 0
63	Striagraph is an instrument used in forensic examination of:	Tool marks	Tyre impression	Glass fracture	Sole Impression	Tool marks
64	Whorls are divided into how many distinct groups:	4	2	3	4	5
65	Chroma Keying is a technique to:	Superimposed picture frames from two sources of video streams	Adjust colours automatically	Superimposed picture frames from two sources of video streams	Change colour options using key	Change colour space
66	A device fitted to motor vehicles which makes a recording on a paper chart of the speeds travelled and distances driven, together with details of the driver's periods of work and rest is called:	Techograph	Speedometer	Techograph	Drivers chart	Polyprofilogram
67	Typical inflation time (in milliseconds) for a frontal airbag to deploy fully in a collision is:	30	20	30	60	80
68	For a full-frontal collision between two vehicles V_1 and V_2 (of mass 1500 Kg and 800 Kg respectively), impacting with equal velocity, which vehicle will rebound with higher velocity?	V_2	V_1	V_2	Both are bound with same velocity	Vehicle V_2 will NOT rebound at all
69	Which of the detector is most suitable for measurement of emission of radiation in ultraviolet region?	Photomultiplier Detector	Thermal Conductive Detector	Electrical conductive Detector	Golay Cell Detector	Photomultiplier Detector
70	What is the size of sweat pore?	0.088 to 0.20 mm	0.05 to 0.1 mm	0.10 to 0.148 mm	0.078 to 0.15 mm	0.088 to 0.20 mm