PUNJAB PUBLIC SERVICE COMMISSION

Competitive Examination (Janurary-2016) for Recruitment of Scientific Assistant (Toxicology) in the Department of Home Affairs & Justice, Punjab

READ INSTRUCTIONS BEFORE FILLING ANY DETAILS OR ATTEMPTING TO ANSWER THE QUESTIONS.

Candidate's Name _____

Father's Name _____

Date of Birth ☐☐ ☐☐ ☐☐☐☐ **Category Code*** ☐☐

DD MM YYYY (*as given in the admit card)

OMR Response Sheet No. _____

Roll No. _____

Candidate's Signature (Please sign in the box)

Booklet No. 00002054

INSTRUCTIONS

1. The candidate shall NOT open this booklet till the time told to do so by the Invigilation Staff. However, in the meantime, the candidate can read these instructions carefully and subsequently fill the appropriate columns given above in CAPITAL letters. The candidate may also fill the relevant columns (other than the columns related to marking responses to the questions) of the Optical Mark Reader(OMR) response sheet, supplied separately

2. **Use only blue or black ball point pen** to fill the relevant columns on this page. Use of fountain pen may leave smudges which may make the information given by the candidate here illegible.

3. The candidate shall be liable for any adverse effect if the information given above is wrong or illegible.

4. The candidate must fill all the columns given above on this page and sign at the appropriate place.

5. **Each candidate is required to attempt 100 questions in 120 minutes**, except for visually impaired candidates, who would be given 20 minutes extra, by marking correct responses on the OMR sheet which would be supplied separately to the candidates

6. **The candidate must write the following on the OMRs sheet:**
   (a)Serial number of OMR sheet supplied to him/her for marking the responses to the questions.
   (b)Serial number of the question booklet
   Failure to do so may lead to cancellation of candidature or any other action which the Commission may deem fit.

7. **The candidate should darken the appropriate response to the question by completely darkening the appropriate circle/oval** according to his/her choice of response i.e. a, b, c or d in the manner shown in the example below.

   a b c d

8. Partly darkening the circle/oval on the OMR response sheet or using other symbols such as tick mark or cross would not result in evaluation of the response as the OMR scanner can only interpret the answers by reading the darkened responses in the manner explained in preceding paragraph. Darkening more than one circle/oval as response to a question shall also be considered as wrong answer.

9. The candidates shall be responsible to ensure that the responses are marked in correct manner and any adverse impact due to wrong marking of responses would be the responsibility of the respective candidate. The following are some of **the examples of wrong marking** of responses on the OMR response sheet.

10. The candidates, when allowed to open the question paper booklet, are advised to check the booklet to confirm that the booklet has complete number of pages, the pages printed correctly and there are no blank pages. In case there is any such error in the question paper booklet then the candidate should immediately bring this fact to the notice of the invigilation Staff and obtain a booklet of the same series as this one.

11. The serial number of the new booklet should be entered in the relevant column of the OMR. The candidate should request the Invigilation Staff to authenticate the change in serial number of question booklet by obtaining the initials of the Staff on the corrected serial number of the question booklet

12. The question paper booklet has 13 pages.

13. **Each question shall carry three marks.**

14. **There are four options for each question and the candidate has to mark the most appropriate answer on the OMR response sheet using blue or black ball point pen.**

15. **There is no negative marking** for wrong answers or questions not attempted by the candidate.

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Scientific Assistant (Toxicology)

1. Which drug is not a stimulant drug?
   a) Benzedrine
   b) Dexedrine
   c) Meperidine
   d) Cocaine

2. In Reinsch's test, which colour deposits on copper strip indicates the presence of antimony?
   a) Blue-black
   b) Black
   c) Grey
   d) Silver

3. The seeds of Argemone Mexicana resembles closely to the:
   a) Castor seeds
   b) Mustard seeds
   c) Datura seeds
   d) Poppy seeds

4. Which drug does not belong to 1, 4- Benzodiazepine series?
   a) Chlordiazepoxide
   b) Diazepam
   c) Nitrazepam
   d) Promethazine

5. "Negligent conduct in relation to poison" has been covered under which section of the Indian Penal Code 1860:
   a) Section 284
   b) Section 319
   c) Section 320
   d) Section 324

6. Reports of certain government scientific experts are admissible in the court as evidence in any inquiry trial or other proceedings under which section of Cr. P.C. 1973:
   a) Section – 390
   b) Section – 393
   c) Section – 290
   d) Section – 293

7. Bolometer is one type of ..... in IR spectroscope:
   a) Monochromator
   b) Grating
   c) Detector
   d) Reference standard

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8. The Raman lines on the lower frequency side of the line of the incident light are called as the:
   a) Stokes lines
   b) Anti- Stokes lines
   c) Fraunhofer lines
   d) Becke lines

9. Flame emission spectroscopy requires the use of suitable fuel for providing energy for the excitation of sample. The most frequent choice of fuel in this technique is:
   a) Methane, Propane
   b) Methane, Butane
   c) Acetylene, Propane
   d) Acetylene, Hydrogen

10. The credit for the technique of chromatography goes to:
   a) Mikhail Tswett
   b) Martin & Synge
   c) J P Doe ring
   d) Melvin calvin

11. The efficiency of the column in gas chromatography depends upon:
   a) No. of theoretical plates in the column
   b) Nature of carrier gas
   c) Nature of stationary phase in the column
   d) Temperature of column

12. The technique in which separation of sample components depends upon their molecular size is called as:
   a) Exclusion chromatography
   b) Gel-permeation chromatography
   c) Size-exclusion chromatography
   d) All of the above

13. Radioactivity is the emission of radiation that accompanies the spontaneous disintegration of unstable nuclei. Thus radioactivity is composed of which type of radiation?
   a) Alpha rays
   b) Beta rays
   c) Gamma rays
   d) All of the above

14. Which technique may provide information as to how the elements are combined into compounds?
   a) Emission spectroscopy
   b) Atomic Absorption spectroscopy
   c) Neutron Activation Analysis
   d) X-ray diffraction

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15. Majority of the drug are metabolized by the enzymes through the Reaction:

a) Reduction Reaction
b) Oxidation reaction
c) Synthesis
d) All of the above

16. Absorption of the poison is more by:

a) Inhalation
b) Ingestion
c) Skin contact
d) Absorption is similar in all

17. Rectified spirit cannot be used for preserving the viscera in case of:

a) Aconite poisoning
b) Alcohol poisoning
c) Heavy-metal poisoning
d) Opiate poisoning

18. Screening tests are performed for:

a) Presumptive identification
b) Definite identification
c) Quantitative analysis
d) Semi-quantitative analysis

19. Which of the following country is not a part of 'Golden Crescent'; one of the leading producers of opium?

a) Iran
b) Syria
c) Pakistan
d) Afganistan

20. Dynode is part of:

a) Photovoltic cell
b) Photo emissive cell
c) Photo multiplier tube
d) None of the above

21. Assertion (A): Infrared spectrometry provides a means to identify an organic compound

Reason (R): It gives the overall molecular configuration of compound:

a) Both (A) & (R) are true
b) Both (A) & (R) false
c) (A) is true but (R) is false
d) (A) is false but (R) is true

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22. Lambert-Beer law is the basic principle for quantitative analysis in:

a) U V Spectrophotometry,
b) X-rays diffraction technique,
c) Neutron Activation Analysis
d) None of the above

23. The time required to emerge the component from the column after injection is termed as:

a) Effusion time
b) Insertion time
c) Injection time
d) Retention time

24. Which of the following microscope is used to achieve maximum resolution:

a) Polarizing microscope
b) Scanning electron microscope
c) Fluorescence microscope
d) Stereo microscope

25. In solvent abuse poisoning commonly used inhalant is:

a) Thinner
b) Acetic acid
c) Phenol
d) Ammonia

26. Which of the following instrumental technique is used to detect the various functional groups of a compound?

a) Fourier Transform Infrared Spectroscopy
b) Atomic Emission Spectroscopy
c) Atomic Absorption Spectroscopy
d) Neuron Activation Analysis

27. Which of the following can be detected by Marquis reagent?

a) Phenobarbitone
b) Atropine
c) Promethazine
d) Diacetylmorphine

28. Which of the following are used as drugs of abuse?
(i) Barbiturates (ii) Aspirin (iii) Diazepam (iv) Morphine

a) (ii) and (iii)
b) (ii), (iii) and (iv)
c) (i), (iii) and (iv)
d) (i) and (ii)

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29. Thevetin and Cerberin glycosides are the components of:

a) Calotropis
b) Cannabis
c) Oleander
d) Dhatura

30. The term 'cocaine bugs' associated with chronic consumption of cocaine refers to:

a) Hallucination
b) Depression
c) Stimulation
d) Somanobolism

31. Which of the following instrumental technique can be considered for the definite identification purpose of the compounds?

a) Mass spectrometry
b) Gas chromatography
c) Thin Layer Chromatography
d) High Performance Thin Layer Chromatography

32. Assertion (A):-Breath Analyser is most frequently used to detect alcohol in drunken driving:

Reason(R):-This is due to the ease and simplicity of operation of the equipment.

a) (A) is incorrect but (R) is correct
b) Both (A) and (R) incorrect
c) (A) is correct but (R) is incorrect
d) Both (A) and (R) are correct

33. Lysergic acid is found in:

a) Ergot fungus,
b) Psilocybe mexicana,
c) Lophophora williamasie
d) Argemone Mexicana

34. Strychnos nux-vomica/Strychnine affects which of the following?

a) Kidney
b) Liver
c) Muscle
d) Heart

35. In Neutron Activation Analysis the main focus is on

a) Chemical form of the sample
b) Concentration of the sample
c) Physical form of the sample
d) Physical and chemical form of the sample

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36. Ganja is the --------- of cannabis:

a) Dried leaves
b) Sweet preparation with leaves
c) Flowering tops of female plant
d) Resin from stem and leaves

37. Cyanide poisoning acts by:

a) Inhibiting DNA synthesis
b) Inhibiting enzymes of protein synthesis
c) Inhibiting cellular respiration
d) Inhibiting protein breakdown

38. Which of the following is a test performed in forensic toxicology labs for detection of methanol?

a) Marquis test
b) Chromotrophic acid test
c) Scot test
d) Zwikker test

39. Use of cannabis products results in:

a) Alteration in perception, thoughts and feelings
b) Depressed brain activity and feeling of calmness
c) Stimulation of CNS, and increased alertness
d) Suppressed brain function and relief in pain

40. Constriction of pupil is a symptom of----- poisoning due to:

a) Atropa Belladone
b) Nux vomica
c) Cocaine
d) Opium

41. In Silica gel-G the letter 'G' stands for:

a) Glucose
b) Gypsum
c) Glacial acetic acid
d) Germanium

42. Garlic like smell can be detected in poisoning by:

a) Cyanide
b) Carbolic Acid
c) Aluminium Phosphide
d) Organophosphates

43. 'Endrin' is a:

a) Organo phosphorous pesticides
b) Organochlorine pesticides
c) Carbamates
d) Pyrethroids

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44. The drug which is used to reduce appetite and fatigue, commonly used as an aphrodisiac, and causes the tactile sensations like a bug crawling on the body is:

a) Cannabis
b) Cocaine
c) Ketamine
d) Morphine

45. Most of the drugs are eliminated from the body mainly by:

a) Breathing followed by break down
b) Scenting followed by excretion
c) Metabolism followed by excretion in urine,
d) Faecal matter

46. Epidemic dropsy is caused by consuming:

a) Nux vomica
b) Mustard oil
c) Argemone mexicana oil
d) Lathyrus sativus

47. Which of the following can be used as 'Slow poison':

a) Phosphide
b) Ethanol
c) Arsenic trioxide
d) Dhatura

48. Which of the following name is not used for Heroin (Diacetyl Morphine) :

a) Smack
b) Brown sugar
c) Speed
d) H

49. Best antidote for treatment of methyl alcohol poisoning is:

a) Ethyl alcohol
b) 4-methyl pyrazone
c) Amphetamines
d) Calcium gluconate

50. Colour test for Nicotine is :

a) Vitali's test
b) Mayer's reagent
c) Gerrard's test
d) Scott's test

51. Mass spectrometer separate the daughter nuclei on the basis of:

a) Mass
b) Charge Ratio
c) Mass to charge ratio
d) Atomic number/no. of neutron ratio

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52. Neutron Activation Analysis is used to identify the following:
   a) Toxic Heavy Metals
   b) Drugs of abuse
   c) Hairs
   d) Plant poison

53. Gas Liquid Chromatography (GLC) is based upon which of the following facts?
   a) Selective adsorption on a solid
   b) Partition between the gas and an immobile liquid phase
   c) Vibration of chemical bond
   d) Partition between the gas and a solid phase

54. Gas Chromatography (GC) is called so, because:
   a) Mobile phase is gaseous
   b) Stationary phase is gaseous
   c) Both mobile & stationary phases are gaseous
   d) The mobile phase is liquid

55. Perforated elementary canal and black viscera is the characteristic feature of which poison:
   a) Pesticide
   b) Sodium cyanide
   c) Sulfuric Acid
   d) Methanol

56. The pH of viscera samples should range from 8-10 in the extraction of:
   a) Ethyl Alcohol
   b) Morphine
   c) Canabinol
   d) Phorate

57. Test for presence of Meconic acid is performed to confirm the detection of:
   a) Opium
   b) Cocaine and its derivatives
   c) Marijuana and its preparations
   d) Oleander

58. Which of the following combination of colour tests is a preferred method of detection for cannabis/cannabinoids?
   a) Mandelin's test & Vitali's test
   b) Marquis test & Mandelin's test
   c) Duquenois-Levine test and Fast Blue B test
   d) Fast Blue B test & Vitali's test

59. Reinsch's test is done for the detection of which of the following?
   i-Arsenic, ii-Iron, iii-Antimony, iv-Mercury
   a) I and iii
   b) i, iii and iv
   c) i, ii, iii and iv
   d) i, ii and iii

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60. Composition of snake venoms include:
   a) Digestive Enzymes
   b) Proteinases
   c) Peptides
   d) All of the above

61. Botulism is a type of:
   a) Volatile Poison,
   b) Food poisoning,
   c) Pesticide,
   d) Metallic poisoning

62. Separation by distribution of components in two phases either solid-liquid or liquid-liquid:
   a) Spectroscopy
   b) Extraction
   c) Annelation
   d) Acclimation

63. A group of drugs which represents Phenethylamine:
   a) Phenothiazine
   b) Benzodiazepine
   c) Barbiturate
   d) Amphetamines

64. Fluorescence Detector, Refractive index detector, UV visible detector, are widely used detectors in:
   a) Gas Chromatography
   b) Fourier Transform Infra-Red
   c) High Performance Thin Layer Chromatography
   d) High Performance Liquid Chromatography

65. The role of 'column' in a chromatographic technique is to:
   a) Separate the components of the mixture
   b) Concentrate the separated components
   c) Ionise the compound to separate the components
   d) None of the above

66. Marsh test used in diagnosis of poisoning due to:
   a) Arsenic
   b) Lead
   c) Aluminium
   d) Copper sulphate

67. Atropine is an alkaloid of which of the following plant:
   a) Dhatura
   b) Ergot
   c) Oleander
   d) Strychnos nux vomica

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68. Diazepam, Medazolam and Lorazepam are the common examples of which category of drugs:
   a) Benzodiazepines
   b) Barbiturates
   c) Beta blockers
   d) Anabolic steroids

69. Turmeric is commonly adulterated with which of the following toxic inorganic compound:
   a) Lead chromate
   b) Ferrous sulphate
   c) Magnesium chloride
   d) Sodium chloride

70. Preservative used in cases related to acid poisoning is:
   a) Common salt
   b) EDTA
   c) Alcohol
   d) Sodium fluoride

71. Poison 'Neela thotha' is:
   a) Potassium ferricyanide
   b) Mercury sulphide
   c) Copper sulphate
   d) Sodium cyanide

72. Non-irritant gas with systemic toxicity:
   a) Carbon monoxide
   b) Ammonia
   c) Hydro Chloric Acid
   d) Chlorine

73. Best exhibit/specimen to test for the presence snake venom is-
   a) Liver
   b) Stomach contents
   c) Bitten area
   d) Intestine

74. Which of the following are generally known as 'neutral poisons'?
   a) Barbiturates
   b) Phenothiazines
   c) Pesticides
   d) Opium alkaloids

75. Which of the following factor is not responsible for the action of a poison?
   a) The dose
   b) The state of poison
   c) The route of administration
   d) The colour of poison

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76. Most widely used antidote in poisoning is:
   a) Activated charcoal
   b) BritishAnti-Lewisite (BAL)
   c) Naloxane
   d) Potassium permanganate

77. Red coloured hypostasis is most commonly seen in death due to:
   a) Carbon monoxide poisoning
   b) Severe burns
   c) Morphine poisoning
   d) Asphyxia

78. 'Run Amok (homicide delusions)' is usually associated with which of the following:
   a) Cannabis and its preparations
   b) Cocaine and its derivatives
   c) Opium and its alkaloids
   d) Amphetamine and its analogues

79. Section 328 of I.P.C. is associated with:
   a) Punishment for causing hurt by means of poison or stupefying agent
   b) Punishment for fouling water of public water bodies
   c) Punishment for selling a drug as a different drug or preparation
   d) Punishment for adulterating food or drink intended for sale

80. The resolution of a lens is described by:
   a) Objective,
   b) Ocular,
   c) Numerical Aperture
   d) Magnification

81. An _____is a display of colours or frequencies emitted from a light source:
   a) Ultra Violet Spectrum
   b) X-Ray analysis
   c) Emission spectrum
   d) Atomic Absorption spectrum

82. The visible spectrum in electromagnetic radiations has the following range:
   a) 3700-7800 Å
   b) 8000- 12000 Å
   c) 12000 – 18000 Å
   d) 18000- 25000 Å

83. Polarizing Microscope is also referred to as:
   a) Epi Microscope,
   b) Retrographic Microscope,
   c) Biological Microscope,
   d) Phase-Contrast Microscope

84. The internal resistance to flow exhibited by a fluid is called:
   a) Density
   b) Surface tension
   c) Viscosity
   d) Conductivity

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85. Non volatile organic compounds can be extracted using:
   a) Solvent extraction method
   b) Stas Otto method
   c) Digestion with Ammonium Sulphate method
   d) All of the Above

86. UV radiation is used in which detector:
   a) Flame Ionisation Detector
   b) Electron Capture Detector
   c) Photo Ionisation Detector
   d) Thermal Conductivity Detector

87. Commonly found poison in spurious liquor is:
   a) Propyl alcohol
   b) Methyl Alcohol
   c) Cannabinol
   d) Mannitol

88. Which of the following is constituent of latex *Papaver somniferum*?
   a) Nicotine
   b) Calotropin,
   c) Codeine
   d) Hyoscyamine

89. Which of the following is an inebriant poison:
   a) Opium
   b) Alcohol
   c) Bhang
   d) Charas

90. The active constituents of cannabis are collectively known as:
   a) Cannabinoids
   b) Annabinoids
   c) Cannazoids
   d) Carbamates

91. Match the correct sequence of chemical tests given in List- I with the poison given in list-II:

List-I	**List-II**
i- Reinsch's test	a. Dhatura
ii- Alkaline Beam Test	b. Arsenic
iii- Vitali's test	c. Morphine
iv- Marquis Test	d. Hashish

   a) i-a, ii-b, iii-c and iv-d
   b) iv-b, iii-c, ii-a and i-d
   c) i-c, ii-a, iv- b and iii-d
   d) i-b, ii-d, iii-a and iv-c

92. Which of the following is a volatile poison:
   a) Chloralhydrate
   b) Silver (Ag)
   c) Mercury (Hg)
   d) Lead (Pb)

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93. Porphyroxine test is an indication presence of :
   a) Poppy
   b) Cannabis
   c) Digitalis
   d) Dhatura

94. The main toxic compound behind 'Bhopal Gas Tragedy' was:
   a) Phosgene
   b) Phosphine
   c) Methyl Cyanide
   d) Methyl Isocyanide

95. Which of the following is non-poisonous snake:
   a) Krait
   b) Rat snake
   c) Viper
   d) Sea snake

96. The most specific detector for halogenated pesticide is:
   a) Flame Ionization detector (FID)
   b) Nitrogen & Phosphorous Detector (NPD)
   c) Electron Capture Detector (ECD)
   d) Flame photometric Detector (FPD)

97. Yellowish discolouration of stomach wall is seen in..... poisoning :
   a) Sulphuric acid
   b) Nitric acid
   c) Carbolic acid
   d) Hydrochloric acid

98. The substance that cause vomiting is called:
   a) Emetic
   b) Antidote
   c) Hallucinate
   d) Sedate

99. Carbon monoxide, when comes in contact with blood, forms:
   a) Carboxyhaemoglobin
   b) Methhaemoglobin
   c) Immunoglobulin
   d) Haemoglobin

100. Which of the following UV wavelengths are used to visualize spots on TLC plate?
   a) 254nm and 396nm
   b) 254nm and 366 nm
   c) 284nm and 550nm
   d) 284nm and 366nm

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