

# PUNJAB PUBLIC SERVICE COMMISSION

Competitive Examination (August-2015) for Recruitment of Scientific Officer  
(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        
DD MM YYYY

Category Code\*    
(\*as given in the admit card)

OMR Response Sheet No. \_\_\_\_\_



Roll No. \_\_\_\_\_

Booklet No.

000315

Candidate's Signature (Please sign in the box)

## INSTRUCTIONS

- |  |   |
|--|---|
| <p>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.</p> | <p>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.</p> <p style="text-align: center;"></p>  |
| <p>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.</p>   | <p>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.</p> |
| <p>3. The candidate shall be liable for any adverse effect if the information given above is wrong or illegible.</p>   | <p>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.</p>   |
| <p>4. The candidate must fill all the columns given above on this page and sign at the appropriate place.</p>  | <p>12. The question paper booklet has 15 pages.</p>   |
| <p>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.</p>  | <p>13. Each question shall carry three marks.</p>   |
| <p>6. The candidate must write the following on the OMRs sheet:<br/>(a)Serial number of OMR sheet supplied to him/her for marking the responses to the questions.<br/>(b)Serial number of the question booklet<br/>Failure to do so may lead to cancellation of candidature or any other action which the Commission may deem fit.</p>   | <p>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.</p>   |
| <p>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.</p> <p style="text-align: center;">a      b      c      d</p> <p style="text-align: center;"></p>  | <p>15. There is no negative marking for wrong answers or questions not attempted by the candidate.</p>  |
| <p>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.</p>  |   |

## Scientific Officer (Toxicology)

1. Dragendorff's reagent is used for the detection of :
  - (A) Alkaloids Poison
  - (B) Albumins Poison
  - (C) Metals Poison
  - (D) Volatile Poison
2. Which of the following antidotes is not used in cyanide poisoning?
  - (A) Dicobalt EDTA
  - (B) Hydroxycobalamin
  - (C) Sodium nitrite
  - (D) Dimercaprol
3. Toxicity is recognized when on the administration of a chemical an observable and quantifiable \_\_\_\_\_ is identified.
  - (A) Mutagen
  - (B) Waste product
  - (C) Dose
  - (D) Effect or response
4. A substance that is being tested for toxicity is injected intramuscularly mixed with peanut oil. The term vehicle in this case refers to:
  - (A) The syringe used
  - (B) The needle type used
  - (C) The peanut oil
  - (D) None of the above
5. The Technique in which Finger Print Region occurred is:
  - (A) Ultraviolet-Visible Spectroscopy
  - (B) Infrared Spectroscopy
  - (C) X-rays Spectroscopy
  - (D) Raman Spectroscopy
6. Solution that resist change in hydrogen ion concentration are called:
  - (A) Buffer solutions
  - (B) Standard solutions
  - (C) Homogenous solutions
  - (D) Concentrated solutions
7. Which poisonous gas results in tissue anoxia?
  - (A) Carbon dioxide
  - (B) Carbon monoxide
  - (C) Hydrogen sulphide
  - (D) Phosgene

8. In solid phase Micro Extraction, what is the thickness of coating of stationary phase (Polydimethylsiloxane) on SPME fiber?
- (A) 1 $\mu$ m
  - (B) 10 $\mu$ m
  - (C) 100 $\mu$ m
  - (D) 1000 $\mu$ m
9. A combination of paper chromatography and electrophoresis involves:
- (A) partition chromatography
  - (B) electrical mobility of the ionic species
  - (C) both (A) and (B)
  - (D) none of the above
10. In case of suspected alcohol poisoning, blood should be collected from:
- (A) Heart
  - (B) Pleural cavity
  - (C) Abdominal cavity
  - (D) Peripheral vein
11. The correctness of measurement is called:
- (A) Accuracy
  - (B) Calibration
  - (C) Error
  - (D) Precision
12. 'Van Urk Reagent' turns blue – purple in the presence of :
- (A) Narceine
  - (B) LSD
  - (C) THC
  - (D) Phenobarbitone
13. In Conway micro diffusion technique, what absorbent is used to absorb HCN gas?
- (A) 10% NaHSO<sub>3</sub>
  - (B) 10% NaOH
  - (C) Potassium dichromate solution in H<sub>2</sub>SO<sub>4</sub>
  - (D) 0.5% palladium chloride solution in 2N HCl
14. 'Crotin' a glycoside of croton tiglium linn. belongs to which class of poison?
- (A) Irritant
  - (B) Cerebral
  - (C) Neurotic
  - (D) Cardiac

15. Which one of the following is a specific detector for organo-phosphorus compounds?

- (A) FID
- (B) PD
- (C) MCT
- (D) TCD

16. Sarin is a:

- (A) Lung injurant
- (B) Nerve agent
- (C) Irritant
- (D) Blistering agent

17. Reinsch's Test is used for:

- (A) Iron Poisoning
- (B) Mercury poisoning
- (C) Carbolic acid poisoning
- (D) Alkali Poisoning

18. Which of the following analysis describes the identify of a material?

- (A) Qualitative analysis
- (B) Quantitative analysis
- (C) Semi qualitative analysis
- (D) Semi quantitative analysis

19. Which of the following analytical technique is capable of performing multiple analytical tasks?

- (A) TLC
- (B) Raman Spectroscopy
- (C) Emission Spectrography
- (D) AAS

20. Which of the following law describes the distribution of a volatile chemical compounds between liquid and gas phase?

- (A) Henry's law
- (B) Pioberts law
- (C) L educ law
- (D) Pascal law

21. Atomic Absorption Spectrometry is a:

- (A) Qualitative technique
- (B) Quantitative technique
- (C) Semi qualitative technique
- (D) Semi Quantitative technique

22. Which of the following detector is used in capillary electrophoresis?
- (A) UV/VIS absorbance
  - (B) FID
  - (C) TCD
  - (D) EC
23. Which of the following detector in HPLC generates structural and molecular weight information about the eluted solute?
- (A) Electrochemical detector
  - (B) Fluorescence detector
  - (C) MS detector
  - (D) RI detector
24. In tandem mass spectrometry, which of the following is coupled?
- (A) MS-IR
  - (B) MS-GC
  - (C) MS-LC
  - (D) MS-MS
25. Primary source of infrared radiation is:
- (A) Microwave radiation
  - (B) Alpha radiation
  - (C) Beta radiation
  - (D) Thermal radiation
26. Which of the following is a volatile inorganic poison?
- (A) Phosphine
  - (B) Chloral hydrate
  - (C) Pyridine
  - (D) Chloroform
27. Which of the following is the clinical finding in carbon monoxide poisoning in skin coloration?
- (A) Cyanosis
  - (B) Jaundice
  - (C) Cherry pink
  - (D) Flushed pink

28.  $C_{21}H_{23}NO_5$  is the molecular formula of:

- (A) Cocaine
- (B) Morphine
- (C) Heroin
- (D) LSD

29. Benzoylmethylecgonine is the scientific name of which of the following drug of abuse?

- (A) Charas
- (B) Cocaine
- (C) Heroin
- (D) Morphine

30. Which of the following is a poisonous fish species:

- (A) *Ciguatera fish*
- (B) *Puffer fish*
- (C) *Scambroid fish*
- (D) All of the above

31. The urinary metabolite of Diazepam is:

- (A) Nordiazepam
- (B) Oxazepam
- (C) Temazepam
- (D) All of the above

32. Which of the followings is an anabolic steroid?

- (A) Nandrolone
- (B) Methaqualone
- (C) Phosalone
- (D) All of the above

33. Which of the following is an organophosphorus pesticide?

- (A) Chlorpyrifos
- (B) Dichlorvos
- (C) Phosphamidon
- (D) All of above

34. Barbiturates are classified as:

- (A) Stimulants
- (B) Hallucinogens
- (C) Narcotics
- (D) None of the above

35. Which of the followings is a spinal plant poison?

- (A) *Atropa belladonna*
- (B) *Cannabis sativa*
- (C) *Papaver somniferum*
- (D) *Strychnos nux vomica*

36. Rati is the common name of:  
(A) *Digitalis purpurea*  
(B) *Aconitum napellus*  
(C) *Abrus precatorius*  
(D) None of the above
37. Which of the following is not a cannabis preparation?  
(A) Charas  
(B) Ganja  
(C) Hashish oil  
(D) Opium
38. Which of the following color test is applied for the detection of Barbiturates?  
(A) Dille-Koppanyi reagent  
(B) Koppanyi-Zwicker reagent  
(C) Mercurous nitrate  
(D) All of the above
39. Which of the followings is not an alkaloid of opium?  
(A) Codeine  
(B) Narcotine  
(C) Morphine  
(D) Ecgonine
40. Which of the following is a separation technique?  
(A) Chromatography  
(B) X-ray fluorescence  
(C) Neutron activation analysis  
(D) None of the above
41. Which of the following is a mechanical poison?  
(A) Glass powder  
(B) Chopped hair  
(C) Diamond dust  
(D) All of the above
42. Which one of the following is extracted from Coca Plant?  
(A) Cocaine  
(B) Amphetamine  
(C) Narcotine  
(D) PCP
43. Which one of the following is detected with Duquenois-levine test?  
(A) Cannabis  
(B) Cocaine  
(C) PCP  
(D) Amphetamine

44. Which part of the Datura plant is poisonous:
- (A) Seed
  - (B) Fruit
  - (C) Root
  - (D) All parts
45. A gummy, milky juice exuded through a cut made in the unripe pod of the poppy is known as:
- (A) Opium
  - (B) Charas
  - (C) Ganja
  - (D) Supha
46. Which one of the following is a Cannabis preparation having highest THC content?
- (A) Charas
  - (B) Ganja
  - (C) Bhang
  - (D) Budha sticks
47. In a Breathalyzer the Ethyl alcohol reacts with:
- (A) Potassium Dichromate
  - (B) Potassium Permanganate
  - (C) Potassium Chloride
  - (D) Potassium Sulphate
48. Carbon Monoxide combines easily with:
- (A) Haemoglobin
  - (B) Carboxy Haemoglobin
  - (C) Hematin
  - (D) None of the above
49. Screening Tests are performed for:
- (A) Tentative Identification
  - (B) Definite Identification
  - (C) Quantitative Analysis
  - (D) Semi quantitative Analysis



50. The active ingredients of Cannabis are collectively known as:
- (A) Cannabinoids
  - (B) Annabinoids
  - (C) Cannazoids
  - (D) Cannatedois
51. Which of the following test is recommended for the detection of carbon Monoxide in Blood?
- (A) Katayamas Test
  - (B) Sodium Fluoride Test
  - (C) Marquis Test
  - (D) Dillie-Kopanyi Test
52. On addition of aqueous solution of Methyl Violet in mineral acids, which color is produced:
- (A) Greenish Blue color
  - (B) Red color
  - (C) Yellow color
  - (D) No color
53. Sodium, Potassium and Ammonium Hydroxides are strongly corrosive due to:
- (A) Their solvent action on protein material
  - (B) Their Saponifying action on the lipides
  - (C) Their ability to extract water from the tissues
  - (D) All of the above
54. Which of the Cyanide is highly poisonous?
- (A) Potassium Cyanide
  - (B) Ferro Cyanide
  - (C) Ferri Cyanide
  - (D) None of the above
55. Which test is recommended for Hydrocyanic acid?
- (A) Libermann's Test
  - (B) Scott Test
  - (C) Vortmans Test
  - (D) Duquenois Test
56. Which part of Atropa Belladonna is poisonous?
- (A) Leaves
  - (B) Berries
  - (C) Root
  - (D) All Parts

57. Alcohol is eliminated out of the body through:

- (A) Urine
- (B) Breath
- (C) Perspiration
- (D) All of the Above

58. In Breathalyzers Pot. dichromate changes to:

- (A) Chromium Sulphate
- (B) Chromium Oxalate
- (C) Chromium Chloride
- (D) None of the Above

59. Drugs such as alcohol, Heroin, Amphetamine, Barbiturates and Cocaine lead to which degree of addiction:

- (A) High
- (B) Low
- (C) Moderate
- (D) None of the above

60. Which of the following is a naturally occurring drug of abuse?

- (A) Morphine
- (B) Heroin
- (C) Methadone
- (D) Meperidine

61. Which of the following is a semi-synthetic drug of abuse?

- (A) Heroin
- (B) Cocaine
- (C) Mescaline
- (D) Meperidine

62. In case of Carbon Monoxide poisoning, which preservative is recommended for the preservation of blood sample?

- (A) Sodium Fluoride
- (B) Sodium Carbonate
- (C) Sodium Chloride
- (D) No preservative

63. Food poisoning occurs due to infection of food with:
- (A) Salmonella group bacteria
  - (B) Salonella group bacteria
  - (C) Salodella group bacteria
  - (D) Salomella group bacteria
64. Oxycodone is synthesized from:
- (A) Thebaine
  - (B) Morphine
  - (C) Codeine
  - (D) Papaverine
65. Which of the following is used for the treatment of Heroin addiction?
- (A) Methadone
  - (B) Mepridine
  - (C) Dextropropoxyphene
  - (D) Butorphenol
66. Which of the following screening test is recommended for organo-phosphorus compounds?
- (A) Ammonium Molybdate Test
  - (B) Marquis Test
  - (C) Froehd's Test
  - (D) Husemann's Test
67. Which of the following extraction method is the most frequently used for extracting pesticides from the biological material?
- (A) Dry ashing method
  - (B) Wet ashing method
  - (C) Solvent extraction method
  - (D) Steam distillation method
68. Which of the following drug is known as "Red Devils"?
- (A) Secobarbital
  - (B) Pentazocine
  - (C) Meprobamate
  - (D) Dextropropoxyphene
69. Which of the following drug is known as "Date Rape Drug"?
- (A) Alprazolam
  - (B) Diazepam
  - (C) Temezepam
  - (D) Flunitrazepam

70. Which of the following drug is also called "Ice"?
- (A) Heroin
  - (B) Cocaine
  - (C) Methamphetamine
  - (D) Oxycodone
71. Mescaline is found in:
- (A) *Lophophora williamsii*
  - (B) *Claviceps purpurea*
  - (C) *Psilocybe mexicana*
  - (D) *Erythroxylon Coca*
72. Smokable form of methamphetamine is:
- (A) Cocaine
  - (B) Rock
  - (C) Ice
  - (D) Glass
73. In the metabolism of alcohol the first step in the process of oxidation is the breakdown of ethyl alcohol to:
- (A) Aldehyde
  - (B) Acetone
  - (C) Acetaldehyde
  - (D) Aniline
74. Vanillin is key component of:
- (A) Duquinois – Levine Reagent
  - (B) Marquis Reagent
  - (C) Scot's Reagent
  - (D) Dillie – Koppanyi Reagent
75. The primary site of kidney damage resulting from acute exposure to inorganic mercury salts is the:
- (A) Glomerulus
  - (B) proximal tubule
  - (C) loop of Henle
  - (D) renal papilla
76. A drug that can mimic brain death when taken in overdose is:
- (A) Thiopentone
  - (B) Propanolol
  - (C) Quetiapine
  - (D) Baclofen

77. Aspirin inhibits all of the following except:
- (A) Cyclo oxygenase
  - (B) Recurrent miscarriages
  - (C) Protacyclin synthesis
  - (D) Lipo oxygenase
78. Run-Amok is caused by:
- (A) Cannabis
  - (B) Cocaine
  - (C) Heroine
  - (D) Hyoscine
79. All of the following symptoms can occur with Ciguatera poisoning except:
- (A) Myalgias
  - (B) Flushing
  - (C) Metallic taste
  - (D) Reversal of temperature sensation
80. Cannabinoids:
- (A) Produce tachycardia
  - (B) Have an antipsychotic action
  - (C) Act on a number of non-specific receptors
  - (D) Constrict the pupils
81. With regard to the alcohols, which is false?
- (A) methanol causes snow storm vision in severe intoxication
  - (B) ingestion of both methanol and ethylene glycol causes a metabolic acidosis with an increased anion gap and an increased osmolar gap
  - (C) neither methanol or ethylene glycol are absorbed through the skin
  - (D) you might expect to find oxalate crystals in the urine of a pt who had an ethylene glycol OD
82. Which of the following is not commonly associated with mercury vapor poisoning?
- (A) acute, corrosive bronchitis
  - (B) interstitial pneumonitis
  - (C) tremor
  - (D) vomiting and bloody diarrhoea
83. Which form of mercury was the predominant cause of Minamata Bay disease?
- (A) metallic mercury
  - (B) mercuric salts
  - (C) mercurous salts
  - (D) organic mercury compounds

84. The chloronicotiny compound imidacloprid demonstrates a high insecticidal potency and exceptionally low mammalian toxicity due to:
- (A) its high affinity for insect nicotinic acetylcholine receptors and low affinity for mammalian nicotinic acetylcholine receptors
  - (B) the blood-brain barrier in mammals
  - (C) the first pass effect in the liver in mammals
  - (D) the low pH in the stomach of monogastric mammals
85. NAA measures the characteristic energy values of the following rays emitted by radioactive isotope:
- (A) Alpha rays
  - (B) Beta rays
  - (C) Gamma rays
  - (D) X-rays
86. Chemicals are more readily absorbed through the skin or GI tract if they are:
- (A) Ionic compound
  - (B) Lipid soluble
  - (C) Non ionic and neutral
  - (D) Both (B) and (C)
87. With respect to excretion of toxic substances which of the following is the correct order of importance of the three major routes?
- (A) fecal>lung>kidney
  - (B) lung>fecal>kidney
  - (C) fecal>kidney>lung
  - (D) kidney>fecal>lung
88. Heparin and Protamine sulphate used together is an example of:
- (A) Synergism
  - (B) Antagonism
  - (C) Agonism
  - (D) Potentiation
89. Spin – Spin coupling is observed in:
- (A) Raman Spectroscopy
  - (B) Neutron Activation Analysis
  - (C) Mass Spectrometry
  - (D) NMR
90. Elapids are:
- (A) Vasculotoxic
  - (B) Neurotoxic
  - (C) Musculotoxic
  - (D) Non toxic

91. Formation of acetone occurs in poisoning due to:
- (A) ethanol
  - (B) methanol
  - (C) Ethyleneglycol
  - (D) isopropanol
92. Which is not an aryl phosphate OP (Organophosphate)?
- (A) Parathion
  - (B) Malathion
  - (C) Tik20
  - (D) Follidol
93. Which of the following statements is not true?
- (A) An analyte is the chemical species that is being analysed for in the sample under test
  - (B) A bulk sample is one that is large enough to weigh
  - (C) The matrix is the entire sample including the chemical species being analysed
  - (D) The process of enterohepatic recirculation results in the retention of certain substances, such as cannabis metabolites, within the body for extended periods
94. Which one is the main source of Nicotine:
- (A) Hemp
  - (B) Coca
  - (C) Tobacco
  - (D) Papaver
95. Viper snake bite resembles with the poisoning of:
- (A) Abrus precatoris
  - (B) Sulphuric acid
  - (C) Organophosphorous
  - (D) Thallium
96. Antidote for mushroom poisoning is:
- (A) Neostigmine
  - (B) Physostigmine
  - (C) Amyl nitrate
  - (D) Atropine

97. Acrodynia is seen in:
- (A) Phenol poisoning
  - (B) Mercury poisoning
  - (C) Carbolic acid poisoning
  - (D) Lead poisoning
98. Phosphine gas is evolved when \_\_\_\_\_ comes in contact with moisture.
- (A) Sulphur
  - (B) Magnesium
  - (C) Aluminium phosphide
  - (D) Urea
99. Cystolithic hair are seen in :
- (A) Ergot
  - (B) Coca plant
  - (C) Cannabis
  - (D) Tobacco
100. Addictive Component of common cough syrup is:
- (A) Pheniramine maleate
  - (B) Codeine phosphate
  - (C) Diphenoxylate hydrochloride
  - (D) Alcohol

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