TESTS «DRUG TOXICOLOGY»

1. Choose the isolation method of salicylates from the biological material:
A. Mineralization
B. Infusion with water
C. Extraction by acidified alcohol or acidified water
D. Steam distillation
E. Extraction by organic solvents

2. Choose the isolation method of phenacetin from the biological material:
A. Steam distillation
B. Infusion with water
C. Extraction by organic solvents
E. Extraction by acidified alcohol or acidified water
D. Mineralization

3. The following method is used to isolate ephedrine from the biological material:
A. Extraction by a polar solvent
B. Extraction by a nonpolar solvent
C. Drug detection in the biological material without preliminary sample preparation
D. Extraction by water
E. Extraction by an organic solvent

4. The various groups of poisons are isolated from the biological samples using particular methods. The following method is used to isolate pyrazolones:
A. Extraction by water alkalified with sodium hydroxide
B. Extraction by water acidified with oxalic acid
C. Extraction by water
D. Mineralization by the mixture of sulphuric and nitric acids
E. Steam distillation

5. The following extragent is used to isolate a drug from the biological sample by the Vasileva's method:
A. Acidified water
B. Acidified ethanol
C. Acidified acetone
D. Acidified acetonitrile
E. Neutral acetonitrile

6. For isolation of drugs from the biological material various solvents are used. Alcohol acidified by oxalic acid is used for the drug isolation by the following method:
A. Vasileva's method
B. Stas-Otto method
C. Valov's method
D. Kramarenko's method
E. Stepanov's method

7. Isolation of a drug by the Stass-Otto method is carried out. In this method the protein admixtures are precipitated with:
A. Acetone
B. Trichloroacetic acid
C. Ammonia chloride
D. Absolute ethanol
E. Acetonitrile

8. During drug isolation from the biological material by the Vasileva's method the most complete destruction of protein-poison bonds takes place at pH values of:
A. 2-3
B. 4-5
C. 6-7
D. 9-10
E. 11-12

9. Isolation of alkaloids from the biological material with water acidified by sulphuric acid in accordance with the Kramarenko's method is carried out at the pH values of 2-3 because:
A. Complete mineralization of the biological material takes place
B. Adsorption of alkaloids on a filter decreases
C. Destruction of protein-alkaloid complexes takes place
D. The need for filtering the extract disappears
E. The need for extracting alkaloids by chloroform disappears

10. In the directed toxicological study of the biological material for the presence of pyrazolones the drugs are extracted by an organic solvent at the following aqueous medium:
A. Neutral
B. Acidified to pH values of 1-2
C. Acidified to pH values of 4-5
D. Alkalified to pH values of 9-10
E. Alkalified to pH values of 12-13

11. For drug isolation from the biological material various methods named by the scientist names have been developed. In which method listed below the water acidified with sulphuric acid is used as an extragent of drugs from the biological sample?
A. Izotov's method
B. Vasileva's method
C. Stas-Otto method
D. Valov's method
E. Kramarenko's method

12. When isolating drugs by Kramarenko's method ammonia sulphate is added to purify the extract. What process or physical phenomena is in the base of this purification method?
A. Extraction
B. Centrifugation
C. Filtration
D. Salting-out
E. Straining

13. When isolating drugs from the biological material protein admixtures are extracted simultaneously with the substance determined. The effective method of the extract purification from the protein admixtures is:
A. Salting-out
B. Filtration
C. Precipitation of admixtures at increased temperature
D. In-salting
E. Extraction

14. Which procedure is not used in the alkaloid isolation method by Kramarenko?
A. Filtration
B. Infusion
C. Centrifugation
D. Extraction by ether
E. Extraction by chloroform

15. When isolating alkaloids from the decomposed biological material by Kramarenko's method crystalline ammonium sulphate is used. For what purpose?
A. To change of the extract pH
B. To create optimal ionic strength of the solution
C. To increase of specific density of the extract
D. To facilitate the sulphate conjugation
E. To precipitate the protein admixtures

16. Drug isolation by the Vasileva's method is carried out. Which drug is extracted by chloroform from acidic aqueous medium:
A. Codeine
B. Ephedrine
C. Benzonal
D. Aminazine
E. Atropine

17. Which chemical transformation of 1,4-benzodiasepines occurs when isolating them from the biological material by the Izotov's method?
A. Oxidation
B. Reduction
C. Hydrolysis
D. Esterification
E. Hydroxylation

18. The general isolation method of alkaloids from the biological material is extraction by a polar solvent. Which alkaloid can be isolated by the steam distillation?
A. Cocaine
B. Coniine
C. Strychnine
D. Atropine
E. Quinine

19. Bases of pyridine and piperidine alkaloids are volatile. To avoid their losses when isolating them from the biological material these bases are transformed into their non-volatile salts. Thus the chloroform extract containing anabasine is saturated with:
A. Hydrochloride
B. Hydrogen sulphide
C. Carbon (IV) oxide
D. Ammonia
E. Carbon (II) oxide

20. Isolation of barbiturate by the Popova's method is carried out. In this isolation method the biological admixtures are removed using the following purification method:
A. TLC
B. Centrifugation
C. Sublimation
D. Dialysis
E. Gel-chromatography

21. Back extraction is the purification method based on the of liquid-liquid extraction process. Liquid-liquid extraction is a substance separation method which is based on the:
A. Different distribution of the components to be separated between two liquid phases
B. Substance diffusion from the distribution surface between two liquid phases into the extragent volume
C. Differences in the concentration of the components to be separated in two liquid phases
D. Chemical interaction of the components to be separated with liquid phases
E. Substance adsorption on the surface of one phase

22. How is the substance transition from an organic solvent phase into aqueous phase called?
A. Liquid extraction
B. Re-extraction
C. Washing away
D. Straining
E. Salting-out

23. TLC drug screening is carried out. The Rf value does not depend on:
A. Size of a chromatographic plate
B. Properties of substances being separated
C. Saturation of a chromatography chamber with mobile phase vapour
D. Composition of a mobile phase
E. Homogeneity of a sorbent layer

24. Opiate immunoassay is carried out with the urine on the polystyrol plate using horseradish peroxidase as a chromogenic substrate. This method is classified as:
A. Homogeneous enzyme immunoassay
B. Heterogeneous enzyme immunoassay
C. Fluoroimmunoassay
D. Heterogeneous fluoroimmunoassay
E. Heterogeneous radioimmunoassay

25. Which reaction is preliminary when detecting barbiturates in the urine during toxicological studies?

A. With cobalt acetate and lithium hydroxide
B. With chlorine-zinc-iodine reagent
C. With ferric chloride-potassium iodide solution
D. With potassium diiodine cuproate
E. With potassium iodide acidic ethanol solution

26. Which reaction of the barbiturate detection results in a violet colour appearance?
A. Reaction with a cobalt salt and alkali
B. Reaction with Rhodamine G
C. Reaction with chlorine-zinc-iodine reagent
D. Reaction with copper-pyridine reagent
E. Reaction with cobalt salts and isopropyl amine

27. Corps liver is sent to a toxicological laboratory for pathomorphological diagnostics of barbiturate poisoning. Which reagent for barbiturates do not give precipitation with?
A. Solution of cobalt nitrate in methanol
B. Chlorine-zinc-iodine reagent
C. Copper-pyridine reagent
D. Ferric-iodine reagent
E. Copper-iodine reagent

28. Toxicologist carried out the Murexide reaction which resulted in forming a pink colour. Which drug could be suspected in the sample studied?
A. Atropine
B. Morphine
C. Strychnine
D. Barbamyl
E. Cocaine

29. The Murexide Test was positive during toxicological testing the urine. Which group of drugs could be suspected?
A. Benzodiazepines
B. Phenothiazines
C. Barbiturates
D. Derivatives of indole
E. Salycilates

30. The Murexide Test is the general identification reaction for barbiturates. The substances listed below give this reaction except for:
A. Caffeine
B. Barbamil
C. Barbital
D. Phenobarbital
E. Hexenalum

31. TLC drug screening is the preliminary test in indirected toxicological studies. The detection of barbiturates is carried out by use:
A. Mercury sulphate then diphenylcarbazone in chloroform
B. Diphenylamine
C. Sodium diethyl dithiocarbamate

D. Dragendorff's spray
E. Iodine vapour

32. For detection of barbiturates on the chromatogram the following reagent (reagents) is (are) used:
A. Diphenylamine
B. Dragendorff's reagent and then sulphuric acid
C. Solution of diphenylcarbazone
D. Iron (III) chloride
E. Mercury (II) sulphate and then diphenylcarbazone solution

33. Alkaloid poisoning occurred. The positive reactions with general sedimentation reagents were obtained when analyzing the acid chloroform extract. What substance presence can be suspected?
A. Morphine
B. Atropine
C. Quinine
D. Caffeine
E. Codeine

34. Caffeine poisoning occurred. The Murexide Test resulted in forming a pink colour when testing the acid chloroform extract. Which drug could interfere with the caffeine detection by this reaction?
A. Phenobarbital
B. Strychnine
C. Atropine
D. Quinine
E. Nicotine

35. The main product of Theophylline metabolism is:
A. 1,3-dimethyluric acid
B. 1-methylxanthine
C. 1-methyluric acid
D. 3-methyluric acid
E. 1,7-dimethylxanthine

36. Which drug can be detected in the acid chloroform extracts by the reaction with iron (III) chloride?
A. Barbital
B. Caffeine
C. Antipyrine
D. Diazepam
E. Theophylline

37. Drug poisoning occurred. Which medicine can be detected in the acid chloroform extracts by the reaction with iron (III) chloride?
A. Metamizole
B. Phenobarbital
C. Caffeine
D. Diazepam
E. Theophylline

38. Absorption of xenobiotics from the gastrointestinal tract is determined by their physico-chemical properties and the particular conditions in different parts of the gastrointestinal tract. Alkaloids as basic substances are absorbed:
A. From the mouth
B. In the stomach
C. From the small intestine
D. From the gullet
E. From the large intestine

39. Unknown substance poisoning occurred. The positive result of the reactions with Dragendorff's, Sonnenschein's, Sheybler's reagents were obtained. Which substance presence could be suspected?
A. Heavy metal salts
B Ammonia and its salts
C Carboxylic acids
D Phenols
E Alkaloids and other nitrogen-containing basic compounds

40. Corps liver is delivered to toxicological laboratory for laboratory diagnostics of drug poisoning. The reactions with Dragendorff's, Marqui's, Bushard's, Mayer's reagents were positive. What medicine cannot be detected by these reactions?
A. Barbamil
B. Morphine
C. Caffeine
D. Diazepam
E. Tisercin

41. Alkaloid poisoning occurred. Isolation of the poisonous substance from the biological material resulted in obtaining an oily residue. The presence of which alkaloid group can be suspected in the biological material?
A. Indole alkaloids
B. Tropane alkaloids
C. Quinoline alkaloids
D. Isoquinoline alkaloids
E. Pyridine alkaloids

42. Alkaloid poisoning occurred. Isolation of the poisonous substance from the biological material resulted in obtaining an oily residue. The presence of which alkaloid can be suspected in the biological material?
A. Codeine
B. Quinine
C. Nicotine
D. Strychnine
E. Atropine

43. Microcrystaloscopic reactions are used to confirmthe presence of pyridine and piperidine alkaloids in the basic chloroform extract. Which reagent do these alkaloids give the most characteristic crystals with?
A. Dragendorff's reagent
B. Marme reagent
C. Mayer's reagent

D. Sheybler’s reagent
E. Sonnenschein’s reagent

44. Which colour reaction is used in chemicotoxicological analysis of anabazine and nicotine?
A. With picric acid
B. With Sonnenschein's reagent
C. With Dragendorff’sreagent
D. With Bushard’s reagent
E. With vanillin in the presence of concentrated hydrochloric acid

45. Which reaction is not used for the anabasine detection in chemicotoxicological analysis?
A. The reaction with peroxyde
B. The reaction with formaldehyde
C. The reaction with vanillin
D. The reaction with picric acid
E. The reaction with Dragendorff’s reagent

46. The final products of cocaine metabolism are:
A. Ecgonine and benzoic acid
B. Ethylecgonine and oxalic acid
C. Trimethylecgonine and tartaric acid
D. Ecgonine and tropic acid
E. Benzoylecgonine and benzoic acid

47. Ecgonine was detected in the urine as a result of the toxicological study. Which substance poisoning can be assumed?
A. Cocaine
B. Phenacetin
C. Caffeine
D. Phenol
E. Morphine

48. Drug poisoning occurred. Vitali-Moren’s reaction was positive when studying the basic chloroform extract. Which substance poisoning can be assumed?
A. Morphine
B. Quinine
C. Ephedrine
D. Atropine
E. Nicotine

49. Vitali-Moren’s reaction is positive for some poisonous substances. Which drugs can be detected by this reaction?
A. Strychnine, atropine, scopolamine
B. Morphine, codeine, dionin
C. Pachycarpine, nicotine, anabazine
D. Quinine, quinidine
E. Aminazine, diprazine, diazolinum

50. The extract from the biological material is analyzed for the presence of a basicsubstance. Which drug does not give Vitali-Moren’s reaction?

A. Atropine
B. Aminazine
C. Dicainum
D. Strychnine
E. Diprazine

51. Forensic toxicological analysis for alkaloids is carried out. A blue fluorescence was observed as a result of adding sulphuric acid solution to the aqueous extract from the biological sample. Which drug can be suspected?
A. Atropine
B. Quinine
C. Scopolamine
D. Morphine
E. Ephedrine

52. The lethal alkaloid poisoning occurred. Which alkaloid could be quantitatively determined by the fluorescence intensity of its sulphuric acid solution?
A. Morphine
B. Codeine
C. Quinine
D. Strychnine
E. Atropine

53. Quinine overdose causes serious disturbances of the central nervous system. For quinine detection in the biological extracts the erythroquinine reaction is used. At the positive result of this reaction the solution examined turns:
A. Pink
B. Yellow
C. Black
D. Blue
E. Brown

54. Most narcotic and drastic substances are obtained from the plant raw material. Which substance listed below is obtained synthetically or semisynthetically?
A. Morphine
B. Codeine
C. Narcotine
D. Heroin
E. Papaverine

55. Opium alkaloids cause severe poisonings because of their high toxicity. The main opium alkaloid is:
A. Morphine
B. Codeine
C. Papaverine
D. Anabazine
E. Strychnine

56. Opiate poisoning occurred. Which substance should be detected in order to prove the presence of opium and not morphine in the sample?

A. Hydrochloric acid
B. Tropic acid
C. Salicylic acid
D. Acetic acid
E. Meconic acid

57. Narcotic poisoning occurred. Which substance should the reaction be carried out on to prove that the sample contained opium and not omnopon?
A. Morphine
B. Meconic acid and meconium
C. Papaverine
D. Thebaine
E. Codeine

58. Narcotine should be detected in the case when the following drug presence is suspected in the extract from the biological material:
A. Morphine
B. Cocaine
C. Nicotine
D. Heroin
E. Atropine

59. Heroin administrated an organism is metabolized mainly to:
A. Codeine
B. 3-monoacetylmorphine
C. 6-monoacetylmorphine
D. 6-monoacetylmorphine and morphine
E. 3-monoacetylmorphine and morphine

60. When the forensic toxicological studies are performed it should be taken into account that the codeine biotransformation product is:
A. Morphine
B. Ethylmorphine
C. Heroin
D. Thebaine
E. Papaverine

61. Opium poisoning occurred. When studying the basic chloroform extract it should be taken into account that the codeine biotransformation product is:
A. Papaverine
B. Thebaine
C. Heroin
D. Ethylmorphine
E. Morphine

62. The main pathway of papaverine biotransformation is:
A. Acetylation
B. N-methylation
C. O- methylation
D. O-demethylation

E. Hydroxylation

63. Express-testing the biological extract for presence of opium is carried out. Which reagent should be used?
A. Concentrated sulphuric acid
B. Concentrated perchloric acid
C. Marqui's reagent
D. Strong dark blue solution
E. Potassium iodide solution

64. Which compound listed below gives the positive result of Pellagri reaction?
A. Caffeine
B. Codeine
C. Papaverine
D. Quinine
E. Cocaine

65. Liver, blood and urine were delivered to laboratory for forensictoxicological study. Which reaction should be used to prove the presence of promedol in the basic chloroform extract?
A. Pellagri reaction
B. With Sonnenschein's reagent
C. With Mayer's reagent
D. With Marquis's reagent
E. With picric acid

66. Opiate poisoning occurred. Which reagent should be used to distinguish morphine and codeine?
A. Dragendorff's reagent
B. Pellagri reagent
C. Iodate acid
D. Hydrogen peroxyde
E. Picric acid

67. Opiate poisoning occurred. Which reagent should be used to distinguish morphine and codeine?
A. Dragendorff's reagent
B. Pellagri reagent
C. Iron (III) chloride
D. Hydrogen peroxyde
E. Picric acid

68. Froehde reagent is used for detection of various alkaloids extracted from the biological material. Which substance does not give the reaction with this reagent?
A. Strychnine
B. Morphine
C. Papaverine
D. Heroin
E. Brucine

69. Alkaloid poisoning is occurred. Which alkaloid is extracted by chloroform from the acidic and alkaline aqueous solutions?
A. Morphine

B. Quinine
C. Cocaine
D. Papaverine
E. Strychnine

70. Analysis of the biological extract resulted in the detection of phenylpropanolamine. Which alkaloid is it a metabolite of?
A. Rezerpine
B. Pyrocatechine
C. Akonitine
D. Securinine
E. Ephedrine

71. Ephedrine, an acyclic alkaloid, is excreted mainly unchanged in the urine. A certain part of ephedrine is metabolized to phenylpropanolamine by:
A. O-demethylation
B. N-demethylation
C. O-dealkylation
D. S-dealkylation
E. Hydroxylation

72. Which reagent is used for visualization of ephedrine in TLC drug screening?
A. Concentrated sulphuric acid
B. Concentrated perchloric acid
C. Marqui's reagent
D. Ninhydrin acetone solution
E. Iron (III) chloride

73. Phenothiazines can result in acute poisonings. Which substance is not a phenothiazine derivative?
A. Diprazine
B. Dicainum
C. Levomepromazine
D. Propazine
E. Aminazine

74. Diprazine, a psychotic drug, has the additive effect with the narcotic and sleeping drugs. Diprazine poisoning can be diagnosed even in 14 days by the presence of the following metabolite in the urine:
A. Sulphoxide
B. Phenylpropanolamine
C. Diethylaminoethanol
D. p-Aminobenzoic acid
E. p-Aminophenol

75. Which group of drugs is metabolized by sulphur oxidization?
A. Phenothiazine derivatives
B. Tropane derivatives
C. Quinoline derivatives
D. Benzodiazepine derivatives
E. Purine derivatives

76. The aminazine poisoning is suspected. The preliminary test for phenothiazines is the reaction with:
A. FPN reagent
B. Bromine water
C. Nitric acid
D. 5 % $KMnO_4$ solution
E. Bushard reagent

77. Thin Layer Chromatography is used for aminazine detection in toxicological studies. Which reagent is not used for aminazine visualization?
A. Marqui's reagent
B. Iron (III) chloride solution
C. Dragendorff's reagent
D. Diphenylcarbazide chloroform solution
E. Iodine vapour

78. The forensic toxicological study could be carried out by the metabolism products of the toxic substances. Aminobenzophenones are biotransformation products of:
A. Phenothiazines
B. Barbiturates
C. 1,4-Benzodiazepines
D. Butyrophenones
E. Opiates

79. When examining the basic chloroform extract for 1, 4-benzodiasepine presence the reaction with β-naphtol resulted in an orange colour appearance. Which substance gives the positive Azo coupling reaction?
A. Aminobenzophenone
B. Methylaminobenzofenone
C. Oxazepam
D. Nitrazepam
E. Diazepam

80. At the toxicological study p-aminobenzoic acid was detected. Which substance could be the reason of the poisoning?
A. Promedol
B. Aminazine
C. Chlorodiazopoxide
D. Novocaine
E. Rezerpine