

Total No. of Printed Pages : 21

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ARE ASKED TO DO SO)

A

SET-Y

PHD/URS-EE-DEC-2022

SUBJECT : Pharmaceutical Sciences 10037

Sr. No.

Time : 1¼ Hours

Max. Marks : 100

Total Questions : 100

Roll No. (in figures) _____ (in words) _____

Name _____ Date of Birth _____

Father's Name _____ Mother's Name _____

Date of Examination _____

(Signature of the Candidate)

(Signature of the Invigilator)

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PHD/URS-EE-2022/(Pharmaceutical Sciences)(SET-Y)/(A)

SEAL

1. Identify the *correct* sequence of acidity :
 - (1) Phenol > Alcohol > Carboxylic acid > Alkane
 - (2) Alcohol > Phenol > Carboxylic acid > Alkane
 - (3) Carboxylic acid > Phenol > Alcohol > Alkane
 - (4) Carboxylic acid > Alcohol > Phenol > Alkane

2. Out of 24 mols of ATP formed in TCA cycle, 2 molecules of ATP can be formed at "substrate level" by which of the following reaction ?
 - (1) Citric acid → Isocitric acid
 - (2) Isocitrate → Oxaloacetate
 - (3) Succinic acid → Fumarate
 - (4) Succinyl CoA → Succinic acid

3. In the treatment of myasthenia gravis, the best agent for distinguishing between myasthenic crisis and cholinergic crisis, given intravenously, is :
 - (1) Pyridostigmine
 - (2) Edrophonium
 - (3) Physostigmine
 - (4) Neostigmine

4. A sample of a powder with true density of 3 g/cm^3 and weighing 100 g was found to have bulk volume of 80.33 cm^3 when placed in a 100-ml graduated cylinder. Calculate the porosity.
 - (1) 0.58
 - (2) 0.41
 - (3) 0.31
 - (4) 0.25

5. Which of the following method is used to obtain surface tension ?
 - (1) X-ray diffraction
 - (2) Karl Fischer method
 - (3) Capillary rise method
 - (4) Sedimentation method

6. Kinematic viscosity is the absolute viscosity divided by the at specific temperature.
- (1) Weight of liquid (2) Density of liquid
(3) Unit time (4) None of the above
7. Which of the following is *not* a primary amine ?
- (1) 3-Hexylamine (2) 1-Butylamine
(3) Diethylamine (4) Cyclohexylamine
8. The migration of a group from carbon to electron-deficient oxygen is an example of reaction.
- (1) Baeyer-Villiger rearrangements
(2) Pinacole-Pinacolone rearrangements
(3) Beckmann rearrangement
(4) Benzillic acid rearrangement
9. A mixture of amino acid can be separated by :
- (1) Sublimation (2) Chromatography
(3) Distillation (4) None
10. A meso compound :
- (1) contains a plane of symmetry
(2) is optically inactive
(3) is an achiral molecule that contains chirality center
(4) is characterized by all of the above characteristics

17. Which of the following statement is *true* ?
- (1) Ampicillin is an antipyretic drug.
 - (2) Chloroquine is an antimalarial drug.
 - (3) Amoxicillin is an antiepileptic drug.
 - (4) Paracetamol is an antibiotic.
18. Dose dumping is a problem in the formulation of :
- (1) Compressed tablets
 - (2) Suppositories
 - (3) Soft gel capsule
 - (4) Controlled release drug products
19. No drug, regardless of its shelf life, can be sold after :
- (1) 2 years
 - (2) 3 years
 - (3) 5 years
 - (4) 7 years
20. An unequal distribution of colour on the surface of the tablet is called :
- (1) Cracking
 - (2) Chipping
 - (3) Picking
 - (4) Mottling
21. Surfactant *not* used parentally is :
- (1) PEG
 - (2) Tween
 - (3) Povidone
 - (4) Cetyl trimethyl ammonium bromide
22. Aseptic area is :
- (1) Class 100 area
 - (2) Class 10 area
 - (3) Class 1000 area
 - (4) Class 10000 area

23. pA can be defined as :

- (1) negative log of molar concentration of an antagonist which produces half of the maximum response.
- (2) negative log of molar concentration of an agonist which produces half of the maximum response.
- (3) negative log of molar concentration of an antagonist in the presence of which double dose of agonist required to produce same effect as produced in absence of antagonist.
- (4) negative log of molar concentration of an antagonist in the presence of which half dose of agonist required to produce same effect as produced in absence of antagonist.

24. Most common phase II reaction is :

- | | |
|--------------------------|-----------------------------|
| (1) Sulphate conjugation | (2) Glucuronide conjugation |
| (3) Hydroxylation | (4) Methylation |

25. Which of the following statements are *true* ?

[P] Substance P is located at sympathetic ganglia.

[Q] Neuropeptide Y is located at postganglionic sympathetic neurons.

[R] Nitric oxide located at enteric neurons.

[S] Gonadotrophin-releasing hormone is not located at sympathetic ganglia.

- | | |
|-------------|-------------|
| (1) P and Q | (2) P and R |
| (3) Q and R | (4) R and S |

26. Pilocarpine is classified as :

- | | |
|-----------------------------|---------------------|
| (1) Cholinestrase inhibitor | (2) Sympathomimetic |
| (3) Cholinomimetic | (4) Cholinolytics |

27. Following statements are *true* except :
- (1) Prolactin is a milk-synthesizing hormone.
 - (2) Oxytocin is a milk-ejecting hormone.
 - (3) ACTH inhibits steroidogenesis in adrenal cortex.
 - (4) Growth hormone secretion decreases and gigantism occurs.
28. Which of the following facilitates the action of GABA ?
- | | |
|--------------------|----------------|
| (1) Chlorpromazine | (2) Ethanol |
| (3) Diazepam | (4) Imipramine |
29. Nitric oxide is contraindicated in patients with :
- | | |
|---------------------------|-----------------------|
| (1) Myasthenia gravis | (2) Polycythemia vera |
| (3) Cerebral degeneration | (4) All of these |
30. Antimalarial activity of chloroquine is due to :
- (1) Inhibition of protein synthesis in plasmodia
 - (2) Inhibit heme polymerase enzyme
 - (3) Paralyzes the plasmodia
 - (4) None of the above
31. Which of the following drug inhibits the entry of virus in the cell ?
- | | | | |
|----------------|---------------|---------------|-----------------|
| (1) Zidovudine | (2) Lopinavir | (3) Ritonavir | (4) Enfuvirtide |
|----------------|---------------|---------------|-----------------|
32. Captopril exerts action by :
- (1) Inhibiting the rennin release
 - (2) Inhibiting conversion of angiotensin I to II
 - (3) Inhibiting conversion of angiotensin II to I
 - (4) Inhibiting conversion of angiotensinogen to angiotensin I

33. HMG-CoA reductase, a key enzyme in the pathway catalyses :
- (1) Side chain cleavage in the conversion of cholesterol to steroid hormones.
 - (2) The reduction of the thio-ester group to an alcohol in mevalonate biosynthesis.
 - (3) The reduction of the hydroxyl group of mevalonate to vitamin D.
 - (4) Steroid condensation reaction in the biosynthesis of bile acids.
34. Centroxyle stands for :
- (1) Phloem in the centre surrounded by xylem
 - (2) Xylem in the centre surrounded by phloem
 - (3) Phloem in the centre surrounded by cambium
 - (4) Xylem in the centre surrounded by cambium
35. In which ayurvedic formulation preservative is *not* required ?
- (1) Lepa (2) Vatika (3) Asava (4) Pisti

36. Match the following :

Basic nucleus	Herbal drug
a. Tropne	i. Emetine
b. Quinoline	ii. Pilocarpine
c. Isoquinoline	iii. Cocaine
d. Imidazole	iv. Quinine
e. Purine	v. Caffiene

- (1) a-iii, b-iv, c-ii, d-i, e-v (2) a-iii, b-iv, c-i, d-ii, e-v
(3) a-iii, b-i, c-iv, d-ii, e-v (4) a-iv, b-iii, c-i, d-ii, e-v

37. Anthraquinone glycosides of cascara contain :
- (1) O-glycosides
 - (2) N-glycosides
 - (3) C-glycosides
 - (4) S-glycosides
38. Tannins do *not* respond to :
- (1) Goldbeater's skin test
 - (2) Phenazone test
 - (3) Match-stick test
 - (4) Borntrager's test
39. Stains useful for identifying fungus include the following, except :
- (1) Gram stain
 - (2) Haernatoxylin and eosin
 - (3) Gomorimethanamine silver
 - (4) PAS (Periodic Acid-Schiff)
40. The following contain live-attenuated live vaccines, except :
- (1) Polio
 - (2) Hepatitis A
 - (3) Yellow fever
 - (4) Measles
41. Coomb's test is for :
- (1) Typhoid
 - (2) Syphillis
 - (3) Yellow fever
 - (4) Antiglobulin
42. Fragile heat sensitive equipments are sterilised by which method ?
- (1) Gamma radiation
 - (2) Ethylene oxide
 - (3) Chemical sterilisation
 - (4) None
43. License for bonded and non-bonded laboratory is issued by :
- (1) Drug Inspector
 - (2) Excise Commissioner
 - (3) Director of health services
 - (4) State Government

49. Which of the following techniques is generally used to produce transgenic animals ?

- (1) Processed RNA containing only exons are introduced into the embryo
- (2) Entire foreign nucleus is introduced into the blastocyst stage enucleated embryo
- (3) Desired DNA is microinjected into fertilised eggs followed by the implantation of the embryo in a foster mother
- (4) c-DNA of the desired gene is introduced into animal embryos and implanted in the foster mother

50. What is meant by 'Organ culture' ?

- (1) Maintenance alive of a whole organ, after removal from the organism by partial immersion in a nutrient fluid
- (2) Introduction of a new organ in an animal body with a view to create genetic mutation in the progenies of that animal
- (3) Cultivation of organs in a laboratory through the synthesis of tissues
- (4) The aspects of culture in community which are mainly dedicated by the need of a specified organ of the human body

51. Protoplasts can be produced from suspension cultures, callus tissues or intact tissues by enzymatic treatment with :

- (1) cellulolytic enzymes
- (2) pectolytic enzyme
- (3) proteolytic enzyme
- (4) both (1) and (2)

52. Match the phytoconstituent with the biosynthetic pathway by which it is biosynthesised :

Column-I	Column-II
(i) Fatty acids	(a) Acetate Mevalonate Pathway
(ii) Steroids	(b) Acetate Malonate Pathway
(iii) Flavonoids	(c) Photosynthesis
(iv) Sugars	(d) Shikimic Acid Pathway

- (1) i-a; ii-b; iii-c; iv-d
 (2) i-d; ii-a; iii-b; iv-c
 (3) i-a; ii-d; iii-b; iv-c
 (4) i-b; ii-a; iii-d; iv-c

53. Which of the following methods is **not** used for extracting volatile oils from aromatic plants ?

- (1) Hydro-distillation
 (2) Ecuelle
 (3) Enfleurage
 (4) Hot continuous Percolation

54. Which of the following is **not** used to determine the identity of crude drugs ?

- (1) Microscopic evaluation
 (2) Phytochemical evaluation
 (3) Acute toxicity evaluation
 (4) Evaluation of physical parameters

55. Which of the followings belongs to tyrosine kinase family of receptors ?

- (1) GABAA receptors
 (2) Adrenergic receptors
 (3) Insulin receptors
 (4) Dopamine receptors

56. Nicotinic Receptors are blocked by :

- (1) Atropine
 (2) Curare
 (3) Suxmethonium
 (4) Acetylcholine esterase

57. Stimulation of the parasympathetic nervous system leads to :
- (1) Constriction of pupils
 - (2) Constriction of skin vessels
 - (3) Constriction of gastrointestinal sphincters
 - (4) Constriction of brain vessels
58. Which of the following are paired bones found in the cranium :
- (1) Frontal and Parietal
 - (2) Parietal and Maxillary
 - (3) Frontal and Occipital
 - (4) Parietal and Temporal
59. Indicate which of the following statements is *true*. Oil-soluble surfactants :
- (1) Have high HLB values.
 - (2) Are hydrophilic.
 - (3) Can be used as emulsifiers to produce water-in-oil emulsions.
 - (4) Are efficient solubilising agents.
60. Which statement is *correct* ?
- (1) Mainly acidic drug binds to albumin.
 - (2) Mainly basic drug binds to albumin.
 - (3) Acidic drug binds only to α -acid glycoprotein.
 - (4) None of the above
61. Drug X has a molecular weight of 750 daltons. From which of the following route will it get excreted ?
- (1) Biliary excretion
 - (2) Urinary excretion
 - (3) Both (1) and (2)
 - (4) Cannot say

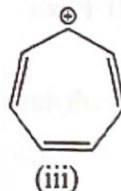
62. Drug disposition includes :

- (1) Drug absorption and distribution
- (2) Drug absorption and metabolism
- (3) Drug distribution, metabolism and excretion
- (4) Drug metabolism and excretion

63. Pyrogens present in containers can be destroyed by heating the containers at :

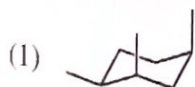
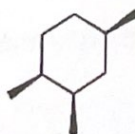
- (1) 121°C for 15 mins
- (2) 121°C for 30 mins
- (3) 210°C for 4 h
- (4) 210°C for 1 h

64. Which of the following structure would be an aromatic ?



- (1) i and iv
- (2) i, iii and iv
- (3) iii and iv
- (4) only ii

65. The most stable conformation of the following compound is :



66. Following pairs represent antibiotic and its source. Identify the *correct* pair :
- (1) Griseofulvin : Bacteria (2) Polyenes : Fungi
(3) Colistin : Fungi (4) Macrolides : Actinomycetes
67. Testing of chemicals by OECD guideline No. 420 refers to which of the following ?
- (1) Acute oral toxicity by acute toxic class method
(2) Acute oral toxicity by up and down procedure
(3) Repeated dose 28-day toxicity study in rodents
(4) Acute oral toxicity by fixed dose procedure
68. The labelling instruction "To be diluted 20 times its volume with water" indicates the dispensed product is a :
- (1) Mouthwash (2) Elixir (3) Linctus (4) Mixture
69. The compound 2 - (Diethylamino) ethyl [bicyclohex-yl]-l-carboxylate hydrochloride is :
- (1) Dicycloverine
(2) Diphenhydramine
(3) Both nicotinic and specific antispasmodic
(4) Diagnostic agent for diagnosis of thyroid gland
70. Which of the following statements about Michaelis-Menten kinetics is *correct* ?
- (1) K_m the Michaelis constant, is a measure of the affinity the enzyme has for its substrate.
(2) K_m the Michaelis constant, is defined as the concentration of substrate required for the reaction to reach maximum velocity.
(3) K_m the Michaelis constant, is defined as the dissociation of the substrate from the enzyme
(4) None of the above

71. The normal concentration of serum bilirubin is :
- (1) 0.2-1 mg/dl (2) 0.2-0.4 mg/dl
(3) 1-2 mg/dl (4) 2-3 mg/dl
72. As quickly dividing cells continue to undergo change (genetic mutation), they may begin to look abnormal and disorganized. This stage of a transforming cell is known as :
- (1) Hyperextension (2) Morphology
(3) Hyperplasia (4) Dysplasia
73. Which of the following responsibility of the clinical pharmacist is in direct patient care area ?
- (1) Supervision of drug administration techniques
(2) Providing drug information to the physician and nurses
(3) Identify drugs brought into the hospital by patients
(4) Reviewing of each patients drug administration forms periodically to ensure all doses have been administered
74. Which of the following statements best describe a lead compound ?
- (1) A compound that contains the element lead (Pb).
(2) A compound from the research laboratory which is chosen to go forward for pre-clinical and clinical trials.
(3) A molecule that shows some activity of interest and serves as the starting point for development of drug.
(4) The first compound of the structural class of compounds to reach the market.

P. T. O.

75. What is the area designed for the preparation of sterile products called ?
- (1) Clean room (2) Formulary
(3) In-patient pharmacy (4) None of the above
76. The Second Law of Thermodynamics stated that :
- (1) It is impossible to take heat from a hotter reservoir and convert it completely into work by a cyclic process without transferring a part of heat to a cooler reservoir
(2) It is impossible to transfer heat from a body at a lower temperature to one at higher temperature
(3) The efficiency of heat engine is always less than 1
(4) All of the above
77. The molarities of 0.1N HCl and 0.1N H_2SO_4 is respectively :
- (1) 0.1M HCl and 0.05M H_2SO_4
(2) 0.05M HCl and 0.1M H_2SO_4
(3) 1M HCl and 0.2M H_2SO_4
(4) 0.05M HCl and 0.1M H_2SO_4
78. Which of the following includes all the aims of kinetics ?
- i. To measure the rate of reaction
ii. To be able to predict the rate of reaction
iii. To be able to establish the mechanism by which reaction occurs
iv. To be able to control the reaction
- (1) i, ii and iii (2) i and ii
(3) i and iii (4) i, ii, iii and iv

79. The boiling point of pure water is 100°C , upon the addition of 10g of NaCl in 100 ml of pure water, the boiling point will be :
- (1) 100°C (2) 92°C
(3) 107°C (4) No change
80. There are several advantages of solid phase synthesis over conventional synthesis. Which of the following statements is *not* an advantage ?
- (1) Excess reagents can be used to force the equilibrium of a reaction to product
(2) Impurities and by products are easily removed
(3) Intermediates do not need to be isolated and purified
(4) Structures can be strongly linked to the solid support such that they can not be removed
81. If a manufacturing company does *not* adhere to cGMP regulations :
- (1) Any drug manufactured by such company will be considered adulterated
(2) No action will be taken if the drug is safe
(3) Company will be closed instantly
(4) It means that necessarily there is something wrong with drug
82. Normality of concentrated HCl is approximately :
- (1) 11.7 N (2) 17 N
(3) 35 N (4) 71 N
83. The sample size in Meso analysis is :
- (1) 0.1 - 0.01 g (2) 0.01 - 0.001 g
(3) 0.001 - 0.0001 g (4) < 0.0001 g

84. Precision of an analytical experiment can be increased by minimization of :
- (1) Personal errors (2) Instrumental errors
(3) Indeterminate errors (4) Determinate errors
85. Mohr's method is carried out at pH :
- (1) 6-9 (2) 8-10
(3) 4-7 (4) 3-6
86. Process of conversion of aggregated precipitates into colloidal form during washing is called :
- (1) Coagulation (2) Peptisation
(3) Colloid formation (4) None of these
87. Calomel is a mixture of :
- (1) Hg_2Cl_2 and KCl (2) Hg_2Cl_2 , Hg and KCl
(3) $HgCl_2$ and KCl (4) $HgCl_2$, Hg and KCl
88. The base value for a homoannular diene is :
- (1) 215 nm (2) 235 nm
(3) 253 nm (4) 207 nm
89. The $n \rightarrow \pi^*$ transition undergoes shift in a polar solvent.
- (1) Hypsochromic (2) Hyperchromic
(3) Bathochromic (4) None
90. Which of the following nucleus is *not* detected in NMR spectroscopy ?
- (1) 1H (2) ^{12}C (3) ^{15}N (4) ^{19}F

91. Which of the following combinations of molecular formula and molecular mass does *not* comply with the Nitrogen rule ?
- (1) $C_2H_7N = 43$ (2) $C_5H_5N = 79$
(3) $C_5H_6N_2 = 95$ (4) $C_7H_6O_2 = 122$
92. The most efficient method for analysis of suspensions is :
- (1) Turbidimetry (2) Infrared spectroscopy
(3) UV-VIS spectroscopy (4) NMR spectroscopy
93. Which of the following is used as light source in atomic absorption spectrophotometer ?
- (1) Tungsten Filament lamp (2) Xenon Arc lamp
(3) Globar source (4) Hollow cathod lamp
94. Which of the following is a basic amino acid ?
- (1) Alanine (2) Arginine
(3) Leucine (4) Tyrosine
95. Synthesis of glucose from fat is called as :
- (1) Glycolysis (2) Gluconeogenesis
(3) Glucosapogenesis (4) Ketogenesis
96. Which statement best describes the oxidation of odd chain fatty acids ?
- (1) Additional specific enzymes are needed for the oxidative process.
(2) One carbon is removed in one cycle.
(3) End product is propionyl Co-enzyme A.
(4) Hydroxy fatty acid are produced.

97. Which of the following vitamins do *not* participate in TCA cycle ?
- (1) Pantothenic acid
 - (2) Lipoic acid
 - (3) Folic acid
 - (4) Riboflavin
98. A nucleoside is composed of :
- (1) Base + Sugar
 - (2) Base + Sugar + Phosphate
 - (3) Base + Phosphate
 - (4) None of these
99. The *correct* expansion of acronym HETP is :
- (1) Highest Equivalent Theoretical Plate
 - (2) Height Equivalent to Theoretical Plate
 - (3) Highest Entropic Theoretical Plate
 - (4) Hollow Equilibrated Theoretical Plate
100. Which of the following instrumental parameters do *not* affect chromatographic resolution of analyte ?
- (1) Particle size of stationary phase
 - (2) Flow rate of mobile phase
 - (3) Length of stationary phase
 - (4) None of these

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SEAL

1. Coomb's test is for :
 - (1) Typhoid
 - (2) Syphilis
 - (3) Yellow fever
 - (4) Antiglobulin

2. Fragile heat sensitive equipments are sterilised by which method ?
 - (1) Gamma radiation
 - (2) Ethylene oxide
 - (3) Chemical sterilisation
 - (4) None

3. License for bonded and non-bonded laboratory is issued by :
 - (1) Drug Inspector
 - (2) Excise Commissioner
 - (3) Director of health services
 - (4) State Government

4. Drugs and Cosmetics Act has been latest amended in the year :
 - (1) 2005
 - (2) 2014
 - (3) 2013
 - (4) 2015

5. Under DPCO-2013, how a ceiling price is calculated :
 - (1) Based on the simple averaging of the market prices of different brands of medicines having a market share of 1% and above, based on the Moving Annual Turnover (MAT).
 - (2) Based on the simple averaging of the market prices of leading brands of medicines having a market share of 1.5% and above, based on the Moving Annual Turnover (MAT).
 - (3) Based on the simple averaging of the market prices of different brands of medicines having a market share of 2% and above, based on the Moving Annual Turnover (MAT).
 - (4) Based on the simple averaging of the market prices of different brands of medicines having a market share of 2.5% and above, based on the Moving Annual Turnover (MAT).

6. Fluid energy mill works on principle of :
- (1) impact
 - (2) compression
 - (3) impact and attrition
 - (4) rotor and stator
7. Which equipment is used for mixing immiscible liquids ?
- (1) Airjet mixer
 - (2) Jet mixer
 - (3) Silverson mixer
 - (4) Sigma mixer
8. The mechanism of intake of DNA fragments from the surrounding medium by a cell is called :
- (1) Transformation
 - (2) Transduction
 - (3) Conjugation
 - (4) Both (1) and (2)
9. Which of the following techniques is generally used to produce transgenic animals ?
- (1) Processed RNA containing only exons are introduced into the embryo
 - (2) Entire foreign nucleus is introduced into the blastocyst stage enucleated embryo
 - (3) Desired DNA is microinjected into fertilised eggs followed by the implantation of the embryo in a foster mother
 - (4) c-DNA of the desired gene is introduced into animal embryos and implanted in the foster mother
10. What is meant by 'Organ culture' ?
- (1) Maintenance alive of a whole organ, after removal from the organism by partial immersion in a nutrient fluid
 - (2) Introduction of a new organ in an animal body with a view to create genetic mutation in the progenies of that animal
 - (3) Cultivation of organs in a laboratory through the synthesis of tissues
 - (4) The aspects of culture in community which are mainly dedicated by the need of a specified organ of the human body

11. The normal concentration of serum bilirubin is :
- (1) 0.2-1 mg/dl (2) 0.2-0.4 mg/dl
(3) 1-2 mg/dl (4) 2-3 mg/dl
12. As quickly dividing cells continue to undergo change (genetic mutation), they may begin to look abnormal and disorganized. This stage of a transforming cell is known as :
- (1) Hyperextension (2) Morphology
(3) Hyperplasia (4) Dysplasia
13. Which of the following responsibility of the clinical pharmacist is in direct patient care area ?
- (1) Supervision of drug administration techniques
(2) Providing drug information to the physician and nurses
(3) Identify drugs brought into the hospital by patients
(4) Reviewing of each patients drug administration forms periodically to ensure all doses have been administered
14. Which of the following statements best describe a lead compound ?
- (1) A compound that contains the element lead (Pb).
(2) A compound from the research laboratory which is chosen to go forward for pre-clinical and clinical trials.
(3) A molecule that shows some activity of interest and serves as the starting point for development of drug.
(4) The first compound of the structural class of compounds to reach the market.

15. What is the area designed for the preparation of sterile products called ?
- (1) Clean room (2) Formulary
(3) In-patient pharmacy (4) None of the above
16. The Second Law of Thermodynamics stated that :
- (1) It is impossible to take heat from a hotter reservoir and convert it completely into work by a cyclic process without transferring a part of heat to a cooler reservoir
(2) It is impossible to transfer heat from a body at a lower temperature to one at higher temperature
(3) The efficiency of heat engine is always less than 1
(4) All of the above
17. The molarities of 0.1N HCl and 0.1N H_2SO_4 is respectively :
- (1) 0.1M HCl and 0.05M H_2SO_4
(2) 0.05M HCl and 0.1M H_2SO_4
(3) 1M HCl and 0.2M H_2SO_4
(4) 0.05M HCl and 0.1M H_2SO_4
18. Which of the following includes all the aims of kinetics ?
- i. To measure the rate of reaction
ii. To be able to predict the rate of reaction
iii. To be able to establish the mechanism by which reaction occurs
iv. To be able to control the reaction
- (1) i, ii and iii (2) i and ii
(3) i and iii (4) i, ii, iii and iv

19. The boiling point of pure water is 100°C , upon the addition of 10g of NaCl in 100 ml of pure water, the boiling point will be :
- (1) 100°C (2) 92°C
(3) 107°C (4) No change
20. There are several advantages of solid phase synthesis over conventional synthesis. Which of the following statements is **not** an advantage ?
- (1) Excess reagents can be used to force the equilibrium of a reaction to product
(2) Impurities and by products are easily removed
(3) Intermediates do not need to be isolated and purified
(4) Structures can be strongly linked to the solid support such that they can not be removed
21. Which of the following combinations of molecular formula and molecular mass does **not** comply with the Nitrogen rule ?
- (1) $\text{C}_2\text{H}_7\text{N} = 43$ (2) $\text{C}_5\text{H}_5\text{N} = 79$
(3) $\text{C}_5\text{H}_6\text{N}_2 = 95$ (4) $\text{C}_7\text{H}_6\text{O}_2 = 122$
22. The most efficient method for analysis of suspensions is :
- (1) Turbidimetry (2) Infrared spectroscopy
(3) UV-VIS spectroscopy (4) NMR spectroscopy
23. Which of the following is used as light source in atomic absorption spectrophotometer ?
- (1) Tungsten Filament lamp (2) Xenon Arc lamp
(3) Globar source (4) Hollow cathod lamp

24. Which of the following is a basic amino acid ?
- (1) Alanine
 - (2) Arginine
 - (3) Leucine
 - (4) Tyrosine
25. Synthesis of glucose from fat is called as :
- (1) Glycolysis
 - (2) Gluconeogenesis
 - (3) Glucosapogenesis
 - (4) Ketogenesis
26. Which statement best describes the oxidation of odd chain fatty acids ?
- (1) Additional specific enzymes are needed for the oxidative process.
 - (2) One carbon is removed in one cycle.
 - (3) End product is propionyl Co-enzyme A.
 - (4) Hydroxy fatty acid are produced.
27. Which of the following vitamins do *not* participate in TCA cycle ?
- (1) Pantothenic acid
 - (2) Lipoic acid
 - (3) Folic acid
 - (4) Riboflavin
28. A nucleoside is composed of :
- (1) Base + Sugar
 - (2) Base + Sugar + Phosphate
 - (3) Base + Phosphate
 - (4) None of these
29. The *correct* expansion of acronym HETP is :
- (1) Highest Equivalent Theoretical Plate
 - (2) Height Equivalent to Theoretical Plate
 - (3) Highest Entropic Theoretical Plate
 - (4) Hollow Equilibrated Theoretical Plate

30. Which of the following instrumental parameters do *not* affect chromatographic resolution of analyte ?
- (1) Particle size of stationary phase
 - (2) Flow rate of mobile phase
 - (3) Length of stationary phase
 - (4) None of these
31. Identify the *correct* sequence of acidity :
- (1) Phenol > Alcohol > Carboxylic acid > Alkane
 - (2) Alcohol > Phenol > Carboxylic acid > Alkane
 - (3) Carboxylic acid > Phenol > Alcohol > Alkane
 - (4) Carboxylic acid > Alcohol > Phenol > Alkane
32. Out of 24 mols of ATP formed in TCA cycle, 2 molecules of ATP can be formed at "substrate level" by which of the following reaction ?
- (1) Citric acid \rightarrow Isocitric acid
 - (2) Isocitrate \rightarrow Oxaloacetate
 - (3) Succinic acid \rightarrow Fumarate
 - (4) Succinyl CoA \rightarrow Succinic acid
33. In the treatment of myasthenia gravis, the best agent for distinguishing between myasthenic crisis and cholinergic crisis, given intravenously, is :
- (1) Pyridostigmine
 - (2) Edrophonium
 - (3) Physostigmine
 - (4) Neostigmine

34. A sample of a powder with true density of 3 g/cm^3 and weighing 100 g was found to have bulk volume of 80.33 cm^3 when placed in a 100-ml graduated cylinder. Calculate the porosity.
- (1) 0.58 (2) 0.41
(3) 0.31 (4) 0.25
35. Which of the following method is used to obtain surface tension ?
- (1) X-ray diffraction (2) Karl Fischer method
(3) Capillary rise method (4) Sedimentation method
36. Kinematic viscosity is the absolute viscosity divided by the at specific temperature.
- (1) Weight of liquid (2) Density of liquid
(3) Unit time (4) None of the above
37. Which of the following is *not* a primary amine ?
- (1) 3-Hexylamine (2) 1-Butylamine
(3) Diethylamine (4) Cyclohexylamine
38. The migration of a group from carbon to electron-deficient oxygen is an example of reaction.
- (1) Baeyer-Villiger rearrangements
(2) Pinacole-Pinacolone rearrangements
(3) Beckmann rearrangement
(4) Benzilic acid rearrangement

39. A mixture of amino acid can be separated by :
- (1) Sublimation (2) Chromatography
(3) Distillation (4) None
40. A meso compound :
- (1) contains a plane of symmetry
(2) is optically inactive
(3) is an achiral molecule that contains chirality center
(4) is characterized by all of the above characteristics
41. Protoplasts can be produced from suspension cultures, callus tissues or intact tissues by enzymatic treatment with :
- (1) cellulolytic enzymes (2) pectolytic enzyme
(3) proteolytic enzyme (4) both (1) and (2)
42. Match the phytoconstituent with the biosynthetic pathway by which it is biosynthesised :

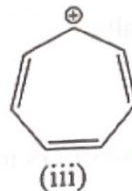
Column-I	Column-II
(i) Fatty acids	(a) Acetate Mevalonate Pathway
(ii) Steroids	(b) Acetate Malonate Pathway
(iii) Flavonoids	(c) Photosynthesis
(iv) Sugars	(d) Shikimic Acid Pathway

- (1) i-a; ii-b; iii-c; iv-d (2) i-d; ii-a; iii-b; iv-c
(3) i-a; ii-d; iii-b; iv-c (4) i-b; ii-a; iii-d; iv-c

43. Which of the following methods is *not* used for extracting volatile oils from aromatic plants ?
- (1) Hydro-distillation (2) Ecuelle
(3) Enfleurage (4) Hot continuous Percolation
44. Which of the following is *not* used to determine the identity of crude drugs ?
- (1) Microscopic evaluation (2) Phytochemical evaluation
(3) Acute toxicity evaluation (4) Evaluation of physical parameters
45. Which of the followings belongs to tyrosine kinase family of receptors ?
- (1) GABAA receptors (2) Adrenergic receptors
(3) Insulin receptors (4) Dopamine receptors
46. Nicotinic Receptors are blocked by :
- (1) Atropine (2) Curare
(3) Suxmethonium (4) Acetylcholine esterase
47. Stimulation of the parasympathetic nervous system leads to :
- (1) Constriction of pupils
(2) Constriction of skin vessels
(3) Constriction of gastrointestinal sphincters
(4) Constriction of brain vessels
48. Which of the following are paired bones found in the cranium :
- (1) Frontal and Parietal (2) Parietal and Maxillary
(3) Frontal and Occipital (4) Parietal and Temporal

49. Indicate which of the following statements is *true*. Oil-soluble surfactants :
- (1) Have high HLB values.
 - (2) Are hydrophilic.
 - (3) Can be used as emulsifiers to produce water-in-oil emulsions.
 - (4) Are efficient solubilising agents.
50. Which statement is *correct* ?
- (1) Mainly acidic drug binds to albumin.
 - (2) Mainly basic drug binds to albumin.
 - (3) Acidic drug binds only to α -acid glycoprotein.
 - (4) None of the above
51. Drug X has a molecular weight of 750 daltons. From which of the following route will it get excreted ?
- | | |
|-----------------------|-----------------------|
| (1) Biliary excretion | (2) Urinary excretion |
| (3) Both (1) and (2) | (4) Cannot say |
52. Drug disposition includes :
- (1) Drug absorption and distribution
 - (2) Drug absorption and metabolism
 - (3) Drug distribution, metabolism and excretion
 - (4) Drug metabolism and excretion
53. Pyrogens present in containers can be destroyed by heating the containers at :
- | | |
|-----------------------|-----------------------|
| (1) 121°C for 15 mins | (2) 121°C for 30 mins |
| (3) 210°C for 4 h | (4) 210°C for 1 h |

54. Which of the following structure would be an aromatic ?



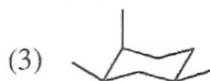
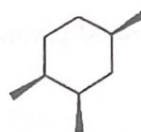
(1) i and iv

(3) iii and iv

(2) i, iii and iv

(4) only ii

55. The most stable conformation of the following compound is :



56. Following pairs represent antibiotic and its source. Identify the *correct* pair :

(1) Griseofulvin : Bacteria

(3) Colistin : Fungi

(2) Polyenes : Fungi

(4) Macrolides : Actinomycetes

57. Testing of chemicals by OECD guideline No. 420 refers to which of the following ?

(1) Acute oral toxicity by acute toxic class method

(2) Acute oral toxicity by up and down procedure

(3) Repeated dose 28-day toxicity study in rodents

(4) Acute oral toxicity by fixed dose procedure

58. The labelling instruction "To be diluted 20 times its volume with water" indicates the dispensed product is a :
- (1) Mouthwash (2) Elixir
(3) Linctus (4) Mixture
59. The compound 2 - (Diethylamino) ethyl [bicyclohex-yl]-l-carboxylate hydrochloride is :
- (1) Dicycloverine
(2) Diphenhydramine
(3) Both nicotinic and specific antispasmodic
(4) Diagonistic agent for diagnosis of thyroid gland
60. Which of the following statements about Michaelis-Menten kinetics is *correct* ?
- (1) Km the Michaelis constant, is a measure of the affinity the enzyme as for its substrate.
(2) Km the Michaelis constant, is defined as the concentration of substrate required for the reaction to reach maximum velocity.
(3) Km the Michaelis constant, is defined as the dissociation of the substrate from the enzyme
(4) None of the above
61. Surfactant *not* used parentally is :
- (1) PEG (2) Tween
(3) Povidone (4) Cetyl trimethyl ammonium bromide
62. Aseptic area is :
- (1) Class 100 area (2) Class 10 area
(3) Class 1000 area (4) Class 10000 area

63. pA can be defined as :
- (1) negative log of molar concentration of an antagonist which produces half of the maximum response.
 - (2) negative log of molar concentration of an agonist which produces half of the maximum response.
 - (3) negative log of molar concentration of an antagonist in the presence of which double dose of agonist required to produce same effect as produced in absence of antagonist.
 - (4) negative log of molar concentration of an antagonist in the presence of which half dose of agonist required to produce same effect as produced in absence of antagonist.
64. Most common phase II reaction is :
- | | |
|--------------------------|-----------------------------|
| (1) Sulphate conjugation | (2) Glucuronide conjugation |
| (3) Hydroxylation | (4) Methylation |
65. Which of the following statements are *true* ?
- [P] Substance P is located at sympathetic ganglia.
- [Q] Neuropeptide Y is located at postganglionic sympathetic neurons.
- [R] Nitric oxide located at enteric neurons.
- [S] Gonadotrophin-releasing hormone is not located at sympathetic ganglia.
- | | |
|-------------|-------------|
| (1) P and Q | (2) P and R |
| (3) Q and R | (4) R and S |
66. Pilocarpine is classified as :
- | | |
|------------------------------|---------------------|
| (1) Cholinesterase inhibitor | (2) Sympathomimetic |
| (3) Cholinomimetic | (4) Cholinolytics |

67. Following statements are *true* except :
- (1) Prolactin is a milk-synthesizing hormone.
 - (2) Oxytocin is a milk-ejecting hormone.
 - (3) ACTH inhibits steroidogenesis in adrenal cortex.
 - (4) Growth hormone secretion decreases and gigantism occurs.
68. Which of the following facilitates the action of GABA ?
- (1) Chlorpromazine
 - (2) Ethanol
 - (3) Diazepam
 - (4) Imipramine
69. Nitric oxide is contraindicated in patients with :
- (1) Myasthenia gravis
 - (2) Polycythemia vera
 - (3) Cerebral degeneration
 - (4) All of these
70. Antimalarial activity of chloroquine is due to :
- (1) Inhibition of protein synthesis in plasmodia
 - (2) Inhibit heme polymerase enzyme
 - (3) Paralyzes the plasmodia
 - (4) None of the above
71. D and L are a pair of configuration.
- (1) Relative
 - (2) Absolute
 - (3) Cis-trans
 - (4) Optical
72. As per Woodward-Hoffman rules for electrocyclic reaction, for a $4n$ system under thermal condition, rotation direction for bonding is :
- (1) Con rotation
 - (2) Dis rotation
 - (3) Both Con and Dis rotations
 - (4) None of the above

73. In which of the following structures, geometrical isomer is *not* possible ?
- (1) Ethene (2) Propene
(3) 2-Pentene (4) (1) and (2)
74. is the heterocyclic compound with five membered ring.
- (1) Aziridine (2) Azole
(3) Azoletine (4) Azoline
75. Chemical nomenclature of procaine is :
- (1) 2-Dimethylaminoethyl 4-aminobenzoate
(2) N, N-Diethyl-4-aminobenzoate
(3) 4-Aminobenzamidoethyl amine
(4) 4-Amino-2-diethylaminoethyl benzoate
76. B-lactamase inhibitor clavunic acid is :
- (1) 1, 1-dioxo penicillanic acid
(2) Carbapenam
(3) Cephams
(4) 1-oxapenam structure, which has no acyl amino side chain
77. Which of the following statement is *true* ?
- (1) Ampicillin is an antipyretic drug.
(2) Chloroquine is an antimalarial drug.
(3) Amoxicillin is an antiepileptic drug.
(4) Paracetamol is an antibiotic.

78. Dose dumping is a problem in the formulation of :
- (1) Compressed tablets (2) Suppositories
(3) Soft gel capsule (4) Controlled release drug products
79. No drug, regardless of its shelf life, can be sold after :
- (1) 2 years (2) 3 years
(3) 5 years (4) 7 years
80. An unequal distribution of colour on the surface of the tablet is called :
- (1) Cracking (2) Chipping
(3) Picking (4) Mottling
81. If a manufacturing company does *not* adhere to cGMP regulations :
- (1) Any drug manufactured by such company will be considered adulterated
(2) No action will be taken if the drug is safe
(3) Company will be closed instantly
(4) It means that necessarily there is something wrong with drug
82. Normality of concentrated *HCl* is approximately :
- (1) 11.7 N (2) 17 N
(3) 35 N (4) 71 N
83. The sample size in Meso analysis is :
- (1) 0.1 - 0.01 g (2) 0.01 - 0.001 g
(3) 0.001 - 0.0001 g (4) < 0.0001 g

84. Precision of an analytical experiment can be increased by minimization of :
- (1) Personal errors (2) Instrumental errors
(3) Indeterminate errors (4) Determinate errors
85. Mohr's method is carried out at pH :
- (1) 6-9 (2) 8-10
(3) 4-7 (4) 3-6
86. Process of conversion of aggregated precipitates into colloidal form during washing is called :
- (1) Coagulation (2) Peptisation
(3) Colloid formation (4) None of these
87. Calomel is a mixture of :
- (1) Hg_2Cl_2 and KCl (2) Hg_2Cl_2 , Hg and KCl
(3) $HgCl_2$ and KCl (4) $HgCl_2$, Hg and KCl
88. The base value for a homoannular diene is :
- (1) 215 nm (2) 235 nm
(3) 253 nm (4) 207 nm
89. The $n \rightarrow \pi^*$ transition undergoes shift in a polar solvent.
- (1) Hypsochromic (2) Hyperchromic
(3) Bathochromic (4) None
90. Which of the following nucleus is **not** detected in NMR spectroscopy ?
- (1) 1H (2) ^{12}C (3) ^{15}N (4) ^{19}F

91. Which of the following drug inhibits the entry of virus in the cell ?
- (1) Zidovudine (2) Lopinavir
(3) Ritonavir (4) Enfuvirtide
92. Captopril exerts action by :
- (1) Inhibiting the rennin release
(2) Inhibiting conversion of angiotensin I to II
(3) Inhibiting conversion of angiotensin II to I
(4) Inhibiting conversion of angiotensinogen to angiotensin I
93. HMG-CoA reductase, a key enzyme in the pathway catalyses :
- (1) Side chain cleavage in the conversion of cholesterol to steroid hormones.
(2) The reduction of the thio-ester group to an alcohol in mevalonate biosynthesis.
(3) The reduction of the hydroxyl group of mevalonate to vitamin D.
(4) Steroid condensation reaction in the biosynthesis of bile acids.
94. Centroxylem stands for :
- (1) Phloem in the centre surrounded by xylem
(2) Xylem in the centre surrounded by phloem
(3) Phloem in the centre surrounded by cambium
(4) Xylem in the centre surrounded by cambium
95. In which ayurvedic formulation preservative is *not* required ?
- (1) Lepa (2) Vatika
(3) Asava (4) Pisti

96. Match the following :

Basic nucleus	Herbal drug
a. Tropne	i. Emetine
b. Quinoline	ii. Pilocarpine
c. Isoquinoline	iii. Cocaine
d. Imidazole	iv. Quinine
e. Purine	v. Caffiene

- (1) a-iii, b-iv, c-ii, d-i, e-v (2) a-iii, b-iv, c-i, d-ii, e-v
 (3) a-iii, b-i, c-iv, d-ii, e-v (4) a-iv, b-iii, c-i, d-ii, e-v

97. Anthraquinone glycosides of cascara contain :

- (1) O-glycosides (2) N-glycosides
 (3) C-glycosides (4) S-glycosides

98. Tannins do *not* respond to :

- (1) Goldbeater's skin test (2) Phenazone test
 (3) Match-stick test (4) Borntrager's test

99. Stains useful for identifying fungus include the following, except :

- (1) Gram stain (2) Haernatoxylin and eosin
 (3) Gomorimethanamine silver (4) PAS (Periodic Acid-Schiff)

100. The following contain live-attenuated live vaccines, except :

- (1) Polio (2) Hepatitis A
 (3) Yellow fever (4) Measles

Total No. of Printed Pages : 21

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ARE ASKED TO DO SO)

C

SET-Y

PHD/URS-EE-DEC-2022

SUBJECT : Pharmaceutical Sciences

10063

Sr. No.

Time : 1¼ Hours

Max. Marks : 100

Total Questions : 100

Roll No. (in figures) _____ (in words) _____

Name _____ Date of Birth _____

Father's Name _____ Mother's Name _____

Date of Examination _____

(Signature of the Candidate)

(Signature of the Invigilator)

**CANDIDATES MUST READ THE FOLLOWING INFORMATION/INSTRUCTIONS BEFORE
STARTING THE QUESTION PAPER.**

1. **All questions are compulsory.**
2. The candidates **must return** the question booklet as well as OMR Answer-Sheet to the Invigilator concerned before leaving the Examination Hall, failing which a case of use of unfair-means / mis-behaviour will be registered against him / her, in addition to lodging of an FIR with the police. Further the answer-sheet of such a candidate will not be evaluated.
3. Keeping in view the transparency of the examination system, carbonless OMR Sheet is provided to the candidate so that a copy of OMR Sheet may be kept by the candidate.
4. Question Booklet along with answer key of all the A, B, C & D code shall be got uploaded on the University website immediately after the conduct of Entrance Examination. Candidates may raise valid objection/complaint if any, with regard to discrepancy in the Question Booklet/Answer Key within 24 hours of uploading the same on the University Website. The complaint be sent by the students to the Controller of Examinations by hand or through email. Thereafter, no complaint in any case, will be considered.
5. The candidate **must not** do any rough work or writing in the OMR Answer-Sheet. Rough work, if any, may be done in the question booklet itself. Answers **must not** be ticked in the question booklet.
6. **There will be no negative marking. Each correct answer will be awarded one full mark. Cutting, erasing, overwriting and more than one answer in OMR Answer-Sheet will be treated as incorrect answer.**
7. Use only **Black or Blue Ball Point Pen** of good quality in the OMR Answer-Sheet.
8. **Before answering the questions, the candidates should ensure that they have been supplied correct and complete booklet. Complaints, if any, regarding misprinting etc. will not be entertained 30 minutes after starting of the examination.**

PHD/URS-EE-2022/(Pharmaceutical Sciences)(SET-Y)/(C)

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(iii) Flavonoids	(c) Photosynthesis
(iv) Sugars	(d) Shikimic Acid Pathway

- (1) i-a; ii-b; iii-c; iv-d
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 - (3) Acidic drug binds only to α -acid glycoprotein.
 - (4) None of the above
21. If a manufacturing company does *not* adhere to cGMP regulations :
- (1) Any drug manufactured by such company will be considered adulterated
 - (2) No action will be taken if the drug is safe
 - (3) Company will be closed instantly
 - (4) It means that necessarily there is something wrong with drug
22. Normality of concentrated *HCl* is approximately :
- | | |
|------------|----------|
| (1) 11.7 N | (2) 17 N |
| (3) 35 N | (4) 71 N |
23. The sample size in Meso analysis is :
- | | |
|----------------------|--------------------|
| (1) 0.1 - 0.01 g | (2) 0.01 - 0.001 g |
| (3) 0.001 - 0.0001 g | (4) < 0.0001 g |
24. Precision of an analytical experiment can be increased by minimization of :
- | | |
|--------------------------|-------------------------|
| (1) Personal errors | (2) Instrumental errors |
| (3) Indeterminate errors | (4) Determinate errors |
25. Mohr's method is carried out at pH :
- | | | | |
|---------|----------|---------|---------|
| (1) 6-9 | (2) 8-10 | (3) 4-7 | (4) 3-6 |
|---------|----------|---------|---------|

26. Process of conversion of aggregated precipitates into colloidal form during washing is called :
- (1) Coagulation (2) Peptisation
(3) Colloid formation (4) None of these
27. Calomel is a mixture of :
- (1) Hg_2Cl_2 and KCl (2) Hg_2Cl_2 , Hg and KCl
(3) $HgCl_2$ and KCl (4) $HgCl_2$, Hg and KCl
28. The base value for a homoannular diene is :
- (1) 215 nm (2) 235 nm (3) 253 nm (4) 207 nm
29. The $n \rightarrow \pi^*$ transition undergoes shift in a polar solvent.
- (1) Hypsochromic (2) Hyperchromic
(3) Bathochromic (4) None
30. Which of the following nucleus is *not* detected in NMR spectroscopy ?
- (1) 1H (2) ^{12}C (3) ^{15}N (4) ^{19}F
31. The normal concentration of serum bilirubin is :
- (1) 0.2-1 mg/dl (2) 0.2-0.4 mg/dl
(3) 1-2 mg/dl (4) 2-3 mg/dl
32. As quickly dividing cells continue to undergo change (genetic mutation), they may begin to look abnormal and disorganized. This stage of a transforming cell is known as :
- (1) Hyperextension (2) Morphology
(3) Hyperplasia (4) Dysplasia

33. Which of the following responsibility of the clinical pharmacist is in direct patient care area ?
- (1) Supervision of drug administration techniques
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34. Which of the following statements best describe a lead compound ?
- (1) A compound that contains the element lead (Pb).
 - (2) A compound from the research laboratory which is chosen to go forward for pre-clinical and clinical trials.
 - (3) A molecule that shows some activity of interest and serves as the starting point for development of drug.
 - (4) The first compound of the structural class of compounds to reach the market.
35. What is the area designed for the preparation of sterile products called ?
- (1) Clean room
 - (2) Formulary
 - (3) In-patient pharmacy
 - (4) None of the above
36. The Second Law of Thermodynamics stated that :
- (1) It is impossible to take heat from a hotter reservoir and convert it completely into work by a cyclic process without transferring a part of heat to a cooler reservoir
 - (2) It is impossible to transfer heat from a body at a lower temperature to one at higher temperature
 - (3) The efficiency of heat engine is always less than 1
 - (4) All of the above

37. The molarities of 0.1N HCl and 0.1N H_2SO_4 is respectively :
- (1) 0.1M HCl and 0.05M H_2SO_4
 - (2) 0.05M HCl and 0.1M H_2SO_4
 - (3) 1M HCl and 0.2M H_2SO_4
 - (4) 0.05M HCl and 0.1M H_2SO_4
38. Which of the following includes all the aims of kinetics ?
- i. To measure the rate of reaction
 - ii. To be able to predict the rate of reaction
 - iii. To be able to establish the mechanism by which reaction occurs
 - iv. To be able to control the reaction
- (1) i, ii and iii
 - (2) i and ii
 - (3) i and iii
 - (4) i, ii, iii and iv
39. The boiling point of pure water is $100^\circ C$, upon the addition of 10g of $NaCl$ in 100 ml of pure water, the boiling point will be :
- (1) $100^\circ C$
 - (2) $92^\circ C$
 - (3) $107^\circ C$
 - (4) No change
40. There are several advantages of solid phase synthesis over conventional synthesis. Which of the following statements is **not** an advantage ?
- (1) Excess reagents can be used to force the equilibrium of a reaction to product
 - (2) Impurities and by products are easily removed
 - (3) Intermediates do not need to be isolated and purified
 - (4) Structures can be strongly linked to the solid support such that they can not be removed

C

41. D and L are a pair of configuration.
(1) Relative (2) Absolute (3) Cis-trans (4) Optical
42. As per Woodward-Hoffman rules for electrocyclic reaction, for a $4n$ system under thermal condition, rotation direction for bonding is :
(1) Con rotation (2) Dis rotation
(3) Both Con and Dis rotations (4) None of the above
43. In which of the following structures, geometrical isomer is **not** possible ?
(1) Ethene (2) Propene
(3) 2-Pentene (4) (1) and (2)
44. is the heterocyclic compound with five membered ring.
(1) Aziridine (2) Azole (3) Azoletine (4) Azoline
45. Chemical nomenclature of procaine is :
(1) 2-Dimethylaminoethyl 4-aminobenzoate
(2) N, N-Diethyl-4-aminobenzoate
(3) 4-Aminobenzamidoethyl amine
(4) 4-Amino-2-diethylaminoethyl benzoate
46. B-lactamase inhibitor clavunic acid is :
(1) 1, 1-dioxo penicillanic acid
(2) Carbapenam
(3) Cepham
(4) 1-oxapenam structure, which has no acyl amino side chain

47. Which of the following statement is *true* ?

- (1) Ampicillin is an antipyretic drug.
- (2) Chloroquine is an antimalarial drug.
- (3) Amoxicillin is an antiepileptic drug.
- (4) Paracetamol is an antibiotic.

48. Dose dumping is a problem in the formulation of :

- (1) Compressed tablets
- (2) Suppositories
- (3) Soft gel capsule
- (4) Controlled release drug products

49. No drug, regardless of its shelf life, can be sold after :

- (1) 2 years
- (2) 3 years
- (3) 5 years
- (4) 7 years

50. An unequal distribution of colour on the surface of the tablet is called :

- (1) Cracking
- (2) Chipping
- (3) Picking
- (4) Mottling

51. Which of the following drug inhibits the entry of virus in the cell ?

- (1) Zidovudine
- (2) Lopinavir
- (3) Ritonavir
- (4) Enfuvirtide

52. Captopril exerts action by :

- (1) Inhibiting the rennin release
- (2) Inhibiting conversion of angiotensin I to II
- (3) Inhibiting conversion of angiotensin II to I
- (4) Inhibiting conversion of angiotensiogen to angiotensin I

53. HMG-CoA reductase, a key enzyme in the pathway catalyses :
- (1) Side chain cleavage in the conversion of cholesterol to steroid hormones.
 - (2) The reduction of the thio-ester group to an alcohol in mevalonate biosynthesis.
 - (3) The reduction of the hydroxyl group of mevalonate to vitamin D.
 - (4) Steroid condensation reaction in the biosynthesis of bile acids.
54. Centroxyle stands for :
- (1) Phloem in the centre surrounded by xylem
 - (2) Xylem in the centre surrounded by phloem
 - (3) Phloem in the centre surrounded by cambium
 - (4) Xylem in the centre surrounded by cambium
55. In which ayurvedic formulation preservative is *not* required ?
- (1) Lepa (2) Vatika (3) Asava (4) Pisti

56. Match the following :

Basic nucleus	Herbal drug
a. Tropne	i. Emetine
b. Quinoline	ii. Pilocarpine
c. Isoquinoline	iii. Cocaine
d. Imidazole	iv. Quinine
e. Purine	v. Caffiene

- (1) a-iii, b-iv, c-ii, d-i, e-v (2) a-iii, b-iv, c-i, d-ii, e-v
- (3) a-iii, b-i, c-iv, d-ii, e-v (4) a-iv, b-iii, c-i, d-ii, e-v

57. Anthraquinone glycosides of cascara contain :
- (1) O-glycosides (2) N-glycosides
(3) C-glycosides (4) S-glycosides
58. Tannins do *not* respond to :
- (1) Goldbeater's skin test (2) Phenazone test
(3) Match-stick test (4) Borntrager's test
59. Stains useful for identifying fungus include the following, except :
- (1) Gram stain (2) Haematoxylin and eosin
(3) Gomorimethanamine silver (4) PAS (Periodic Acid-Schiff)
60. The following contain live-attenuated live vaccines, except :
- (1) Polio (2) Hepatitis A
(3) Yellow fever (4) Measles
61. Identify the *correct* sequence of acidity :
- (1) Phenol > Alcohol > Carboxylic acid > Alkane
(2) Alcohol > Phenol > Carboxylic acid > Alkane
(3) Carboxylic acid > Phenol > Alcohol > Alkane
(4) Carboxylic acid > Alcohol > Phenol > Alkane
62. Out of 24 mols of ATP formed in TCA cycle, 2 molecules of ATP can be formed at "substrate level" by which of the following reaction ?
- (1) Citric acid \rightarrow Isocitric acid (2) Isocitrate \rightarrow Oxaloacetate
(3) Succinic acid \rightarrow Fumarate (4) Succinyl CoA \rightarrow Succinic acid

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63. In the treatment of myasthenia gravis, the best agent for distinguishing between myasthenic crisis and cholinergic crisis, given intravenously, is :
- (1) Pyridostigmine (2) Edrophonium
(3) Physostigmine (4) Neostigmine
64. A sample of a powder with true density of 3 g/cm^3 and weighing 100 g was found to have bulk volume of 80.33 cm^3 when placed in a 100-ml graduated cylinder. Calculate the porosity.
- (1) 0.58 (2) 0.41 (3) 0.31 (4) 0.25
65. Which of the following method is used to obtain surface tension ?
- (1) X-ray diffraction (2) Karl Fischer method
(3) Capillary rise method (4) Sedimentation method
66. Kinematic viscosity is the absolute viscosity divided by the at specific temperature.
- (1) Weight of liquid (2) Density of liquid
(3) Unit time (4) None of the above
67. Which of the following is **not** a primary amine ?
- (1) 3-Hexylamine (2) 1-Butylamine
(3) Diethylamine (4) Cyclohexylamine
68. The migration of a group from carbon to electron-deficient oxygen is an example of reaction.
- (1) Baeyer-Villiger rearrangements
(2) Pinacole-Pinacolone rearrangements
(3) Beckmann rearrangement
(4) Benzillic acid rearrangement

69. A mixture of amino acid can be separated by :
- (1) Sublimation (2) Chromatography
(3) Distillation (4) None
70. A meso compound :
- (1) contains a plane of symmetry
(2) is optically inactive
(3) is an achiral molecule that contains chirality center
(4) is characterized by all of the above characteristics
71. Coomb's test is for :
- (1) Typhoid (2) Syphilis
(3) Yellow fever (4) Antiglobulin
72. Fragile heat sensitive equipments are sterilised by which method ?
- (1) Gamma radiation (2) Ethylene oxide
(3) Chemical sterilisation (4) None
73. License for bonded and non-bonded laboratory is issued by :
- (1) Drug Inspector
(2) Excise Commissioner
(3) Director of health services
(4) State Government
74. Drugs and Cosmetics Act has been latest amended in the year :
- (1) 2005 (2) 2014 (3) 2013 (4) 2015

75. Under DPCO-2013, how a ceiling price is calculated :
- (1) Based on the simple averaging of the market prices of different brands of medicines having a market share of 1% and above, based on the Moving Annual Turnover (MAT).
 - (2) Based on the simple averaging of the market prices of leading brands of medicines having a market share of 1.5% and above, based on the Moving Annual Turnover (MAT).
 - (3) Based on the simple averaging of the market prices of different brands of medicines having a market share of 2% and above, based on the Moving Annual Turnover (MAT).
 - (4) Based on the simple averaging of the market prices of different brands of medicines having a market share of 2.5% and above, based on the Moving Annual Turnover (MAT).
76. Fluid energy mill works on principle of :
- (1) impact
 - (2) compression
 - (3) impact and attrition
 - (4) rotor and stator
77. Which equipment is used for mixing immiscible liquids ?
- (1) Airjet mixer
 - (2) Jet mixer
 - (3) Silverson mixer
 - (4) Sigma mixer
78. The mechanism of intake of DNA fragments from the surrounding medium by a cell is called :
- (1) Transformation
 - (2) Transduction
 - (3) Conjugation
 - (4) Both (1) and (2)

79. Which of the following techniques is generally used to produce transgenic animals ?
- (1) Processed RNA containing only exons are introduced into the embryo
 - (2) Entire foreign nucleus is introduced into the blastocyst stage enucleated embryo
 - (3) Desired DNA is microinjected into fertilised eggs followed by the implantation of the embryo in a foster mother
 - (4) c-DNA of the desired gene is introduced into animal embryos and implanted in the foster mother

80. What is meant by 'Organ culture' ?

- (1) Maintenance alive of a whole organ, after removal from the organism by partial immersion in a nutrient fluid
- (2) Introduction of a new organ in an animal body with a view to create genetic mutation in the progenies of that animal
- (3) Cultivation of organs in a laboratory through the synthesis of tissues
- (4) The aspects of culture in community which are mainly dedicated by the need of a specified organ of the human body

81. Which of the following combinations of molecular formula and molecular mass does *not* comply with the Nitrogen rule ?

- | | |
|----------------------|-----------------------|
| (1) $C_2H_7N = 43$ | (2) $C_5H_5N = 79$ |
| (3) $C_5H_6N_2 = 95$ | (4) $C_7H_6O_2 = 122$ |

82. The most efficient method for analysis of suspensions is :

- | | |
|-------------------------|---------------------------|
| (1) Turbidimetry | (2) Infrared spectroscopy |
| (3) UV-VIS spectroscopy | (4) NMR spectroscopy |

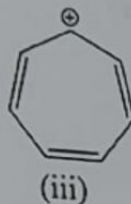
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83. Which of the following is used as light source in atomic absorption spectrophotometer ?
- (1) Tungsten Filament lamp
 - (2) Xenon Arc lamp
 - (3) Globar source
 - (4) Hollow cathod lamp
84. Which of the following is a basic amino acid ?
- (1) Alanine
 - (2) Arginine
 - (3) Leucine
 - (4) Tyrosine
85. Synthesis of glucose from fat is called as :
- (1) Glycolysis
 - (2) Gluconeogenesis
 - (3) Glucosapogenesis
 - (4) Ketogenesis
86. Which statement best describes the oxidation of odd chain fatty acids ?
- (1) Additional specific enzymes are needed for the oxidative process.
 - (2) One carbon is removed in one cycle.
 - (3) End product is propionyl Co-enzyme A.
 - (4) Hydroxy fatty acid are produced.
87. Which of the following vitamins do *not* participate in TCA cycle ?
- (1) Pantothenic acid
 - (2) Lipoic acid
 - (3) Folic acid
 - (4) Riboflavin
88. A nucleoside is composed of :
- (1) Base + Sugar
 - (2) Base + Sugar + Phosphate
 - (3) Base + Phosphate
 - (4) None of these

89. The *correct* expansion of acronym HETP is :
- (1) Highest Equivalent Theoretical Plate
 - (2) Height Equivalent to Theoretical Plate
 - (3) Highest Entropic Theoretical Plate
 - (4) Hollow Equilibrated Theoretical Plate
90. Which of the following instrumental parameters do *not* affect chromatographic resolution of analyte ?
- (1) Particle size of stationary phase
 - (2) Flow rate of mobile phase
 - (3) Length of stationary phase
 - (4) None of these
91. Drug X has a molecular weight of 750 daltons. From which of the following route will it get excreted ?
- | | |
|-----------------------|-----------------------|
| (1) Biliary excretion | (2) Urinary excretion |
| (3) Both (1) and (2) | (4) Cannot say |
92. Drug disposition includes :
- (1) Drug absorption and distribution
 - (2) Drug absorption and metabolism
 - (3) Drug distribution, metabolism and excretion
 - (4) Drug metabolism and excretion
93. Pyrogens present in containers can be destroyed by heating the containers at :
- | | |
|-----------------------|-----------------------|
| (1) 121°C for 15 mins | (2) 121°C for 30 mins |
| (3) 210°C for 4 h | (4) 210°C for 1 h |

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94. Which of the following structure would be an aromatic ?



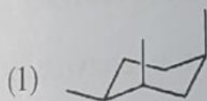
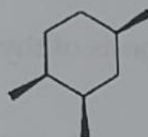
(1) i and iv

(2) i, iii and iv

(3) iii and iv

(4) only ii

95. The most stable conformation of the following compound is :



96. Following pairs represent antibiotic and its source. Identify the **correct** pair :

(1) Griseofulvin : Bacteria

(2) Polyenes : Fungi

(3) Colistin : Fungi

(4) Macrolides : Actinomycetes

97. Testing of chemicals by OECD guideline No. 420 refers to which of the following ?

(1) Acute oral toxicity by acute toxic class method

(2) Acute oral toxicity by up and down procedure

(3) Repeated dose 28-day toxicity study in rodents

(4) Acute oral toxicity by fixed dose procedure

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P. T. O.

98. The labelling instruction "To be diluted 20 times its volume with water" indicates the dispensed product is a :
- (1) Mouthwash (2) Elixir
(3) Linctus (4) Mixture
99. The compound 2 - (Diethylamino) ethyl [bicyclohex-yl]-l-carboxylate hydrochloride is :
- (1) Dicycloverine
(2) Diphenhydramine
(3) Both nicotinic and specific antispasmodic
(4) Diagnostic agent for diagnosis of thyroid gland
100. Which of the following statements about Michaelis-Menten kinetics is *correct* ?
- (1) K_m the Michaelis constant, is a measure of the affinity the enzyme has for its substrate.
(2) K_m the Michaelis constant, is defined as the concentration of substrate required for the reaction to reach maximum velocity.
(3) K_m the Michaelis constant, is defined as the dissociation of the substrate from the enzyme
(4) None of the above

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ARE ASKED TO DO SO)

D

SET-Y

PHD/URS-EE-DEC-2022

SUBJECT : Pharmaceutical Sciences

10068

Sr. No.

Time : 1¼ Hours

Max. Marks : 100

Total Questions : 100

Roll No. (in figures) _____ (in words) _____

Name _____ Date of Birth _____

Father's Name _____ Mother's Name _____

Date of Examination _____

(Signature of the Candidate)

(Signature of the Invigilator)

**CANDIDATES MUST READ THE FOLLOWING INFORMATION/INSTRUCTIONS BEFORE
STARTING THE QUESTION PAPER.**

1. **All questions are compulsory.**
2. The candidates **must return** the question booklet as well as OMR Answer-Sheet to the Invigilator concerned before leaving the Examination Hall, failing which a case of use of unfair-means / mis-behaviour will be registered against him / her, in addition to lodging of an FIR with the police. Further the answer-sheet of such a candidate will not be evaluated.
3. Keeping in view the transparency of the examination system, carbonless OMR Sheet is provided to the candidate so that a copy of OMR Sheet may be kept by the candidate.
4. Question Booklet along with answer key of all the A, B, C & D code shall be got uploaded on the University website immediately after the conduct of Entrance Examination. Candidates may raise valid objection/complaint if any, with regard to discrepancy in the Question Booklet/Answer Key within 24 hours of uploading the same on the University Website. The complaint be sent by the students to the Controller of Examinations by hand or through email. Thereafter, no complaint in any case, will be considered.
5. The candidate **must not** do any rough work or writing in the OMR Answer-Sheet. Rough work, if any, may be done in the question booklet itself. Answers **must not** be ticked in the question booklet.
6. **There will be no negative marking. Each correct answer will be awarded one full mark. Cutting, erasing, overwriting and more than one answer in OMR Answer-Sheet will be treated as incorrect answer.**
7. Use only **Black** or **Blue Ball Point Pen** of good quality in the OMR Answer-Sheet.
8. **Before answering the questions, the candidates should ensure that they have been supplied correct and complete booklet. Complaints, if any, regarding misprinting etc. will not be entertained 30 minutes after starting of the examination.**

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SEAL

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- (1) Clean room
 - (2) Formulary
 - (3) In-patient pharmacy
 - (4) None of the above
26. The Second Law of Thermodynamics stated that :
- (1) It is impossible to take heat from a hotter reservoir and convert it completely into work by a cyclic process without transferring a part of heat to a cooler reservoir
 - (2) It is impossible to transfer heat from a body at a lower temperature to one at higher temperature
 - (3) The efficiency of heat engine is always less than 1
 - (4) All of the above

27. The molarities of 0.1N HCl and 0.1N H_2SO_4 is respectively :
- (1) 0.1M HCl and 0.05M H_2SO_4
 - (2) 0.05M HCl and 0.1M H_2SO_4
 - (3) 1M HCl and 0.2M H_2SO_4
 - (4) 0.05M HCl and 0.1M H_2SO_4
28. Which of the following includes all the aims of kinetics ?
- i. To measure the rate of reaction
 - ii. To be able to predict the rate of reaction
 - iii. To be able to establish the mechanism by which reaction occurs
 - iv. To be able to control the reaction
- (1) i, ii and iii
 - (2) i and ii
 - (3) i and iii
 - (4) i, ii, iii and iv
29. The boiling point of pure water is $100^\circ C$, upon the addition of 10g of $NaCl$ in 100 ml of pure water, the boiling point will be :
- (1) $100^\circ C$
 - (2) $92^\circ C$
 - (3) $107^\circ C$
 - (4) No change
30. There are several advantages of solid phase synthesis over conventional synthesis. Which of the following statements is **not** an advantage ?
- (1) Excess reagents can be used to force the equilibrium of a reaction to product
 - (2) Impurities and by products are easily removed
 - (3) Intermediates do not need to be isolated and purified
 - (4) Structures can be strongly linked to the solid support such that they can not be removed

31. Surfactant *not* used parentally is :
- (1) PEG (2) Tween
(3) Povidone (4) Cetyl trimethyl ammonium bromide
32. Aseptic area is :
- (1) Class 100 area (2) Class 10 area
(3) Class 1000 area (4) Class 10000 area
33. pA can be defined as :
- (1) negative log of molar concentration of an antagonist which produces half of the maximum response.
(2) negative log of molar concentration of an agonist which produces half of the maximum response.
(3) negative log of molar concentration of an antagonist in the presence of which double dose of agonist required to produce same effect as produced in absence of antagonist.
(4) negative log of molar concentration of an antagonist in the presence of which half dose of agonist required to produce same effect as produced in absence of antagonist.
34. Most common phase II reaction is :
- (1) Sulphate conjugation (2) Glucronide conjugation
(3) Hydroxylation (4) Methylation
35. Which of the following statements are *true* ?
- [P] Substance P is located at sympathetic ganglia.
[Q] Neuropeptide Y is located at postganglionic sympathetic neurons.
[R] Nitric oxide located at enteric neurons.
[S] Gonadotrophin-releasing hormone is not located at sympathetic ganglia.
- (1) P and Q (2) P and R (3) Q and R (4) R and S

36. Pilocarpine is classified as :

- (1) Cholinestrase inhibitor
- (3) Cholinomimetic

- (2) Sympathomimetic
- (4) Cholinolytics

37. Following statements are *true* except :

- (1) Prolactin is a milk-synthesizing hormone.
- (2) Oxytocin is a milk-ejecting hormone.
- (3) ACTH inhibits steroidogenesis in adrenal cortex.
- (4) Growth hormone secretion decreases and gigantism occurs.

38. Which of the following facilitates the action of GABA ?

- (1) Chlorpromazine
- (3) Diazepam

- (2) Ethanol
- (4) Imipramine

39. Nitric oxide is contraindicated in patients with :

- (1) Myasthenia gravis
- (3) Cerebral degeneration

- (2) Polycythemia vera
- (4) All of these

40. Antimalarial activity of chloroquine is due to :

- (1) Inhibition of protein synthesis in plasmodia
- (2) Inhibit heme polymerase enzyme
- (3) Paralyzes the plasmodia
- (4) None of the above

41. Drug X has a molecular weight of 750 daltons. From which of the following route will it get excreted ?

- (1) Biliary excretion
- (3) Both (1) and (2)

- (2) Urinary excretion
- (4) Cannot say

42. Drug disposition includes :

- (1) Drug absorption and distribution
- (2) Drug absorption and metabolism
- (3) Drug distribution, metabolism and excretion
- (4) Drug metabolism and excretion

43. Pyrogens present in containers can be destroyed by heating the containers at :

- (1) 121°C for 15 mins
- (2) 121°C for 30 mins
- (3) 210°C for 4 h
- (4) 210°C for 1 h

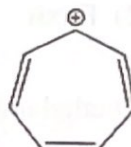
44. Which of the following structure would be an aromatic ?



(i)



(ii)



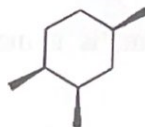
(iii)



(iv)

- (1) i and iv
- (2) i, iii and iv
- (3) iii and iv
- (4) only ii

45. The most stable conformation of the following compound is :



51. If a manufacturing company does *not* adhere to cGMP regulations :
- (1) Any drug manufactured by such company will be considered adulterated
 - (2) No action will be taken if the drug is safe
 - (3) Company will be closed instantly
 - (4) It means that necessarily there is something wrong with drug
52. Normality of concentrated *HCl* is approximately :
- (1) 11.7 N
 - (2) 17 N
 - (3) 35 N
 - (4) 71 N
53. The sample size in Meso analysis is :
- (1) 0.1 - 0.01 g
 - (2) 0.01 - 0.001 g
 - (3) 0.001 - 0.0001 g
 - (4) < 0.0001 g
54. Precision of an analytical experiment can be increased by minimization of :
- (1) Personal errors
 - (2) Instrumental errors
 - (3) Indeterminate errors
 - (4) Determinate errors
55. Mohr's method is carried out at pH :
- (1) 6-9
 - (2) 8-10
 - (3) 4-7
 - (4) 3-6
56. Process of conversion of aggregated precipitates into colloidal form during washing is called :
- (1) Coagulation
 - (2) Peptisation
 - (3) Colloid formation
 - (4) None of these

57. Calomel is a mixture of :
- (1) Hg_2Cl_2 and KCl (2) Hg_2Cl_2 , Hg and KCl
(3) $HgCl_2$ and KCl (4) $HgCl_2$, Hg and KCl
58. The base value for a homoannular diene is :
- (1) 215 nm (2) 235 nm
(3) 253 nm (4) 207 nm
59. The $n \rightarrow \pi^*$ transition undergoes shift in a polar solvent.
- (1) Hypsochromic (2) Hyperchromic
(3) Bathochromic (4) None
60. Which of the following nucleus is **not** detected in NMR spectroscopy ?
- (1) 1H (2) ^{12}C (3) ^{15}N (4) ^{19}F
61. Coomb's test is for :
- (1) Typhoid (2) Syphilis
(3) Yellow fever (4) Antiglobulin
62. Fragile heat sensitive equipments are sterilised by which method ?
- (1) Gamma radiation (2) Ethylene oxide
(3) Chemical sterilisation (4) None
63. License for bonded and non-bonded laboratory is issued by :
- (1) Drug Inspector (2) Excise Commissioner
(3) Director of health services (4) State Government

64. Drugs and Cosmetics Act has been latest amended in the year :
- (1) 2005 (2) 2014 (3) 2013 (4) 2015
65. Under DPCO-2013, how a ceiling price is calculated :
- (1) Based on the simple averaging of the market prices of different brands of medicines having a market share of 1% and above, based on the Moving Annual Turnover (MAT).
- (2) Based on the simple averaging of the market prices of leading brands of medicines having a market share of 1.5% and above, based on the Moving Annual Turnover (MAT).
- (3) Based on the simple averaging of the market prices of different brands of medicines having a market share of 2% and above, based on the Moving Annual Turnover (MAT).
- (4) Based on the simple averaging of the market prices of different brands of medicines having a market share of 2.5% and above, based on the Moving Annual Turnover (MAT).
66. Fluid energy mill works on principle of :
- (1) impact (2) compression
- (3) impact and attrition (4) rotor and stator
67. Which equipment is used for mixing immiscible liquids ?
- (1) Airjet mixer (2) Jet mixer
- (3) Silverson mixer (4) Sigma mixer
68. The mechanism of intake of DNA fragments from the surrounding medium by a cell is called :
- (1) Transformation (2) Transduction
- (3) Conjugation (4) Both (1) and (2)

69. Which of the following techniques is generally used to produce transgenic animals ?
- (1) Processed RNA containing only exons are introduced into the embryo
 - (2) Entire foreign nucleus is introduced into the blastocyst stage enucleated embryo
 - (3) Desired DNA is microinjected into fertilised eggs followed by the implantation of the embryo in a foster mother
 - (4) c-DNA of the desired gene is introduced into animal embryos and implanted in the foster mother
70. What is meant by 'Organ culture' ?
- (1) Maintenance alive of a whole organ, after removal from the organism by partial immersion in a nutrient fluid
 - (2) Introduction of a new organ in an animal body with a view to create genetic mutation in the progenies of that animal
 - (3) Cultivation of organs in a laboratory through the synthesis of tissues
 - (4) The aspects of culture in community which are mainly dedicated by the need of a specified organ of the human body
71. Protoplasts can be produced from suspension cultures, callus tissues or intact tissues by enzymatic treatment with :
- (1) cellulolytic enzymes
 - (2) pectolytic enzyme
 - (3) proteolytic enzyme
 - (4) both (1) and (2)

77. Stimulation of the parasympathetic nervous system leads to :
- (1) Constriction of pupils
 - (2) Constriction of skin vessels
 - (3) Constriction of gastrointestinal sphincters
 - (4) Constriction of brain vessels
78. Which of the following are paired bones found in the cranium :
- | | |
|---------------------------|----------------------------|
| (1) Frontal and Parietal | (2) Parietal and Maxillary |
| (3) Frontal and Occipital | (4) Parietal and Temporal |
79. Indicate which of the following statements is *true*. Oil-soluble surfactants :
- (1) Have high HLB values.
 - (2) Are hydrophilic.
 - (3) Can be used as emulsifiers to produce water-in-oil emulsions.
 - (4) Are efficient solubilising agents.
80. Which statement is *correct* ?
- (1) Mainly acidic drug binds to albumin.
 - (2) Mainly basic drug binds to albumin.
 - (3) Acidic drug binds only to α -acid glycoprotein.
 - (4) None of the above
81. Identify the *correct* sequence of acidity :
- (1) Phenol > Alcohol > Carboxylic acid > Alkane
 - (2) Alcohol > Phenol > Carboxylic acid > Alkane
 - (3) Carboxylic acid > Phenol > Alcohol > Alkane
 - (4) Carboxylic acid > Alcohol > Phenol > Alkane

82. Out of 24 mols of ATP formed in TCA cycle, 2 molecules of ATP can be formed at "substrate level" by which of the following reaction ?
- (1) Citric acid \rightarrow Isocitric acid
 - (2) Isocitrate \rightarrow Oxaloacetate
 - (3) Succinic acid \rightarrow Fumarate
 - (4) Succinyl CoA \rightarrow Succinic acid
83. In the treatment of myasthenia gravis, the best agent for distinguishing between myasthenic crisis and cholinergic crisis, given intravenously, is :
- (1) Pyridostigmine
 - (2) Edrophonium
 - (3) Physostigmine
 - (4) Neostigmine
84. A sample of a powder with true density of 3 g/cm^3 and weighing 100 g was found to have bulk volume of 80.33 cm^3 when placed in a 100-ml graduated cylinder. Calculate the porosity.
- (1) 0.58
 - (2) 0.41
 - (3) 0.31
 - (4) 0.25
85. Which of the following method is used to obtain surface tension ?
- (1) X-ray diffraction
 - (2) Karl Fischer method
 - (3) Capillary rise method
 - (4) Sedimentation method
86. Kinematic viscosity is the absolute viscosity divided by the at specific temperature.
- (1) Weight of liquid
 - (2) Density of liquid
 - (3) Unit time
 - (4) None of the above

87. Which of the following is *not* a primary amine ?
- (1) 3-Hexylamine (2) 1-Butylamine
(3) Diethylamine (4) Cyclohexylamine
88. The migration of a group from carbon to electron-deficient oxygen is an example of reaction.
- (1) Baeyer-Villiger rearrangements
(2) Pinacole-Pinacolone rearrangements
(3) Beckmann rearrangement
(4) Benzillic acid rearrangement
89. A mixture of amino acid can be separated by :
- (1) Sublimation (2) Chromatography
(3) Distillation (4) None
90. A meso compound :
- (1) contains a plane of symmetry
(2) is optically inactive
(3) is an achiral molecule that contains chirality center
(4) is characterized by all of the above characteristics
91. D and L are a pair of configuration.
- (1) Relative (2) Absolute
(3) Cis-trans (4) Optical

97. Which of the following statement is *true* ?
- (1) Ampicillin is an antipyretic drug.
 - (2) Chloroquine is an antimalarial drug.
 - (3) Amoxicillin is an antiepileptic drug.
 - (4) Paracetamol is an antibiotic.
98. Dose dumping is a problem in the formulation of :
- (1) Compressed tablets
 - (2) Suppositories
 - (3) Soft gel capsule
 - (4) Controlled release drug products
99. No drug, regardless of its shelf life, can be sold after :
- (1) 2 years
 - (2) 3 years
 - (3) 5 years
 - (4) 7 years
100. An unequal distribution of colour on the surface of the tablet is called :
- (1) Cracking
 - (2) Chipping
 - (3) Picking
 - (4) Mottling

ANSWER KEYS OF PHARMACEUTICAL SC. FOR SESSION 2022-23				
Q. NO.	A	B	C	D
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2	4	2	1	1
3	2	2	3	4
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5	3	1	1	2
6	2	3	1	3
7	3	3	4	3
8	1	1	3	1
9	2	3	3	2
10	4	1	2	4
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46	3	1	4	4
47	3	1	2	4
48	1	4	4	1
49	3	3	3	1
50	1	1	4	1

ANSWER KEYS OF PHARMACEUTICAL SC. FOR SESSION 2022-23				
Q. NO.	A	B	C	D
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99	2	1	1	3
100	4	2	1	4