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(To be filled in the
OMR Sheet)

प्रश्नपुस्तिका क्रमांक
Question Booklet No.

O.M.R. Serial No.

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प्रश्नपुस्तिका सीरीज
Question Booklet Series

D

M.Sc Industrial Chemistry (Third Semester)

Examination, February/March-2022

MSIC-302

Pharmaceutical Chemistry

Time : 1:30 Hours

Maximum Marks-100

जब तक कहा न जाय, इस प्रश्नपुस्तिका को न खोलें

- निर्देश : —
1. परीक्षार्थी अपने अनुक्रमांक, विषय एवं प्रश्नपुस्तिका की सीरीज का विवरण यथास्थान सही- सही भरे, अन्यथा मूल्यांकन में किसी भी प्रकार की विसंगति की दशा में उसकी जिम्मेदारी स्वयं परीक्षार्थी की होगी।
 2. इस प्रश्नपुस्तिका में 100 प्रश्न हैं, जिनमें से केवल 75 प्रश्नों के उत्तर परीक्षार्थियों द्वारा दिये जाने हैं। प्रत्येक प्रश्न के चार वैकल्पिक उत्तर प्रश्न के नीचे दिये गये हैं। इन चारों में से केवल एक ही उत्तर सही है। जिस उत्तर को आप सही या सबसे उचित समझते हैं, अपने उत्तर पत्रक (O.M.R. ANSWER SHEET) में उसके अक्षर वाले वृत्त को काले या नीले बाल प्वाइंट पेन से पूरा भर दें। यदि किसी परीक्षार्थी द्वारा निर्धारित प्रश्नों से अधिक प्रश्नों के उत्तर दिये जाते हैं तो उसके द्वारा हल किये गये प्रथमतः यथा निर्दिष्ट प्रश्नोत्तरों का ही मूल्यांकन किया जायेगा।
 3. प्रत्येक प्रश्न के अंक समान हैं। आप के जितने उत्तर सही होंगे, उन्हीं के अनुसार अंक प्रदान किये जायेंगे।
 4. सभी उत्तर केवल ओ०एम०आर० उत्तर पत्रक (O.M.R. ANSWER SHEET) पर ही दिये जाने हैं। उत्तर पत्रक में निर्धारित स्थान के अलावा अन्यत्र कहीं पर दिया गया उत्तर मान्य नहीं होगा।
 5. ओ०एम०आर० उत्तर पत्रक (O.M.R. ANSWER SHEET) पर कुछ भी लिखने से पूर्व उसमें दिये गये सभी अनुदेशों को सावधानीपूर्वक पढ़ लिया जाय।
 6. परीक्षा समाप्ति के उपरान्त परीक्षार्थी कक्ष निरीक्षक को अपनी प्रश्नपुस्तिका बुकलेट एवं ओ०एम०आर० शीट पृथक-पृथक उपलब्ध कराने के बाद ही परीक्षा कक्ष से प्रस्थान करें।
 7. निगेटिव मार्किंग नहीं है।
- महत्वपूर्ण : — प्रश्नपुस्तिका खोलने पर प्रथमतः जाँच कर देख लें कि प्रश्नपुस्तिका के सभी पृष्ठ भलीभाँति छपे हुए हैं। यदि प्रश्नपुस्तिका में कोई कमी हो, तो कक्ष निरीक्षक को दिखाकर उसी सीरीज की दूसरी प्रश्नपुस्तिका प्राप्त कर लें।

Rough Work / रफ कार्य

1. Which of the following virus is used as viral virus :
 - (A) Adeno–Virus
 - (B) Adeno–Associated Virus
 - (C) Both
 - (D) None
2. In gene therapy what is altered by the addition of genes :
 - (A) Chromosomes
 - (B) Chlorophyll
 - (C) Mitrochonolria
 - (D) None
3. Ampicillin may be prepared from the following :
 - (A) D–phenylglycine
 - (B) Phenylglycine
 - (C) Both
 - (D) None
4. Kinetic resolution technique is based on the following fact :
 - (A) Enzymes act preferentially on one enantiomer
 - (B) Enzymes act on two enantiomers
 - (C) Depending on environmental conditions
 - (D) None
5. Disteriomers can be separated by :
 - (A) Distillation
 - (B) Crystallization
 - (C) Both
 - (D) None

6. Mirror image and non super imposable are called :
- (A) Isomers
 - (B) Polymers
 - (C) Disteriomers
 - (D) Enantiomers
7. Assymmetrical synthesis refers to the :
- (A) In appropriate synthesis of enantiomer
 - (B) Selective synthesis of a particular enantiomer
 - (C) Both
 - (D) None
8. The conformation or configuration of the compound that fits property on active site to give desired pharmacological response is known as :
- (A) Accepted conformation
 - (B) Reactive conformation
 - (C) Active conformation
 - (D) None
9. Different Lactum antibiotics may be synthesized by :
- (A) Penicillin G
 - (B) Paracetamol
 - (C) Both
 - (D) None
10. Lead compound may be converted to a semi- synthetic lead compound by using bio- process like :
- (A) Enzyme hydrolysis
 - (B) Micro- organism metabolism
 - (C) Both
 - (D) None

11. Potency of drug is normally expressed as :
- (A) C_{50} - Value
 - (B) IP_{50} - Value
 - (C) P_{50} - Value
 - (D) IC_{50} - Value
12. Anti-bacterial compounds are classified as :
- (A) Bactericidal
 - (B) Bacteriophilic
 - (C) Bacteriophobic
 - (D) All
13. Inhibition curve is :
- (A) Linear
 - (B) Parabolic
 - (C) Sigmoid
 - (D) None
14. In scat chard plot, the slope is given by :
- (A) Slope = 0
 - (B) Slope = $-\frac{1}{Dissociation}$
 - (C) Slope = $+\frac{1}{Dissociation}$
 - (D) None
15. The purpose of measuring the minimum inhibitory concentration is to ensure to drugs :
- (A) Efficiency
 - (B) Inhibitory effect
 - (C) Affinity
 - (D) Efficacy

16. Minimum inhibitory concentration depends on the :
- (A) Micro- organism
 - (B) Effected human being
 - (C) Antibiotic effect
 - (D) All
17. The combined influence of affinity and efficacy is called as :
- (A) Patency of drug
 - (B) Potency of drug
 - (C) Metabolism of drug
 - (D) None
18. Efficacy in terms of Pharmacology means :
- (A) Maximum response of applied agent
 - (B) Minimum response of applied agent
 - (C) Average response of applied agent
 - (D) None
19. After conjugation in phase two the drug is ready to be :
- (A) Absorbed by the Blood
 - (B) Absorbed by the Gut wall
 - (C) By Skin
 - (D) Excreted by kidney
20. Which of the following drug increases the activity of cytochrome P-450 enzyme :
- (A) Cimetidine
 - (B) Phenobarbital
 - (C) Both
 - (D) None

21. If the drug decreases the activity of cyto-450 enzyme then the dosing frequency has to be :
- (A) Increase
 - (B) Reduce
 - (C) Made constant
 - (D) None
22. The drugs which are highly hydrophobic often gets :
- (A) Absorbed in fatty tissues
 - (B) Do not reach their target
 - (C) Both
 - (D) None
23. Drugs which are not bounded by plasma protein can reach :
- (A) Faster
 - (B) Slower
 - (C) Cannot be said confirmly
 - (D) None
24. Normally the drug do not effect the brain (side effect) because it cannot cross :
- (A) Blood- brain carrier
 - (B) Bloo-brain barrier
 - (C) Both
 - (D) None
25. A drug should be :
- (A) Highly hydrophilic
 - (B) Highly hydrophobic
 - (C) Moderate nature of above two character
 - (D) None

26. Drug absorption is effected by :
- (A) Molecular weight of drug
 - (B) Hydrophobic character of drug
 - (C) Hydrophilic character of drug
 - (D) All
27. Pharmacokinetics refers to :
- (A) Response of drug towards body
 - (B) Response of body towards drug
 - (C) Both
 - (D) None
28. The pores of Ion channels are associated with :
- (A) Selective filters
 - (B) Non- Selective filters
 - (C) Both
 - (D) None
29. Ion channels are normally :
- (A) Open
 - (B) Semi -open
 - (C) Closed
 - (D) Semi- closed
30. Ion Channels are :
- (A) Carbohydrate complexes
 - (B) Protein complexes
 - (C) Glycosidic complexes
 - (D) Lipo lipic complexes

31. The drugs that binds to the receptor binding site and give natural message by “Switching on” the receptor are called :
- (A) Agonists
 - (B) Non- agonists
 - (C) Antagonists
 - (D) None
32. The site other than the active site is called :
- (A) Inactive site
 - (B) Allosteric site
 - (C) Surface active site
 - (D) None
33. Competitive inhibitors are the compound which compete with the substrate for the enzyme :
- (A) Passive site
 - (B) Inactive site
 - (C) Both Passive and inactive site
 - (D) Active Site
34. Enzyme inhibitors interact :
- (A) Covalently with enzymes
 - (B) Non- Covalently with enzymes
 - (C) By co-ordinate bond with enzymes
 - (D) None
35. Enzymes Facilitates the conversion of substrate to the product by :
- (A) A complete participation in a chemical reaction
 - (B) Does not participate in a chemical reaction
 - (C) Both
 - (D) None

36. Enzymes interact with the substrate through :
- (A) Covalent bond
 - (B) Ionic bond
 - (C) Weak interactions
 - (D) All
37. Amino acids are joined by which bond to form proteins .
- (A) Peptide bond
 - (B) Glycosidic bond
 - (C) Lipo Lipid bond
 - (D) None
38. Enzymes are .
- (A) Fats
 - (B) Carbohydrates
 - (C) Proteins
 - (D) Vitamins
39. Proteins are amino acid :
- (A) Dimers
 - (B) Monomers
 - (C) Stereomers
 - (D) Polymers
40. Enzymes are:
- (A) Inorganic Catalyst
 - (B) Organic Catalyst
 - (C) Bio- Catalyst
 - (D) None

41. Which of the following is a characteristic of a drug :
- (A) It should be orally active
 - (B) It should have maximum pharmacological effect
 - (C) It should have good bioavailability
 - (D) All
42. A test which is performed outside the living organism is called :
- (A) In Vivo
 - (B) In Vitro
 - (C) In Viro
 - (D) None
43. Behind the counter medicines are dispensed by pharmacist :
- (A) With need of doctor's prescription
 - (B) Without need of doctor's prescription
 - (C) Any of the above is possible
 - (D) None
44. Dispensing of medication is regulated by government into which category :
- (A) Over- the- Counter
 - (B) Behind- the Counter
 - (C) Prescription only medicines
 - (D) All
45. Anxiolytic is a drug which belongs to group-
- (A) Antipyretics
 - (B) Pain killers
 - (C) Psychoactive
 - (D) None

46. Which of the following drugs belongs to Psychoactive drug?
- (A) Stimulants
 - (B) Depressants
 - (C) Antidepressants
 - (D) All
47. Psychoactive drugs-
- (A) Activate the body
 - (B) Deactivate the brain
 - (C) Effect the function of central nervous system
 - (D) None
48. Which of the following classifies drugs according to their solubility and permeability?
- (A) Bio pharmaceutical classification
 - (B) Therapeutic chemical classification
 - (C) Both
 - (D) None
49. The unique ATC code to the drug is assigned by :
- (A) Therapeutic chemical
 - (B) Anatomical therapeutic chemical
 - (C) Therapeutical chemical society
 - (D) None
50. Drugs are :
- (A) Obtained naturally from medicinal plants
 - (B) Synthesized using organic synthesis
 - (C) Both are correct
 - (D) None

51. Non - β - lactum antibiotics are derived from :
- (A) Penicillin's
 - (B) Tetracycline's and Aminoglycosides
 - (C) Both
 - (D) None
52. Which of the following drug is capable of modulating the irregular heart beats and bringing it back to normal :
- (A) Antiarrhythmic drug
 - (B) Hypotensive drug
 - (C) Cardiac glycosides
 - (D) All
53. Example of HIV drugs is :
- (A) E Fa vivenz
 - (B) Azidothymidine
 - (C) Both
 - (D) None
54. Anti- HIV agents are mainly :
- (A) HIV protease
 - (B) HIV reverse transcriptase
 - (C) HIV integrase
 - (D) All
55. DNA chain cutter, a type of anticancer agent work by generating :
- (A) Carbocation
 - (B) Nitroniumion
 - (C) Free radical
 - (D) Proton acceptor

56. Which of the following drug is used for Alzheimer's disease :
- (A) Cholinergic
 - (B) Adrenergic
 - (C) Both
 - (D) None
57. Which of the following is a type of Psycho active drugs :
- (A) Adrenergic
 - (B) Cholinergic
 - (C) Dopaminergic
 - (D) All
58. The drug which binds to the major groove or minor groove of DNA is :
- (A) Doxorubicin
 - (B) Daunomycin
 - (C) Both
 - (D) None
59. Vasopressor drugs are related to :
- (A) Heart Failure
 - (B) Heart attack
 - (C) Angina pain
 - (D) High blood pressure
60. The drug given to the patient in case of angina pain is :
- (A) Prenylamine
 - (B) Buphenine
 - (C) Both
 - (D) None

61. Drug prolonging cardiac action :
- (A) Increases time of cardiac action potential
 - (B) Decreases time of cardiac action potential
 - (C) Move no effect on cardiac action
 - (D) None
62. Digoxin is a :
- (A) Cardiac glycoside drug
 - (B) Hypotensive drug
 - (C) Antiarrhythmic drug
 - (D) None
63. Which of the following drug modulates over production of vasoconstrictor peptide angiotensin – II .
- (A) Cardiac glycosidic
 - (B) Hypotensive drug
 - (C) Hypertensive drug
 - (D) None
64. Which of the following antibiotics are small sugar type molecules and have different mode of action as compared to other synthetic antibiotics :
- (A) Fluro quinolones
 - (B) Oxa Zolidinones
 - (C) Both
 - (D) None

65. The first and second generation antibiotics are mostly effective against gram :
- (A) Positive bacteria
 - (B) Negative bacteria
 - (C) Mixture of above two
 - (D) None
66. Pseudo monas entero bacteriaccac bacteria are gram :
- (A) Positive bacteria
 - (B) Negative bacteria
 - (C) Mixture of above two
 - (D) None
67. Aminoglycosides are :
- (A) First Generation antibiotics
 - (B) Second generation antibiotics
 - (C) Third generation antibiotics
 - (D) None
68. Which of the following antibiotics is not synthetic :
- (A) Oxazolidinone's
 - (B) Fluoroquinolones
 - (C) Cephalosporin's
 - (D) Polymixins
69. Cephalosporin's are :
- (A) Synthetic antibiotics
 - (B) Semi synthetic antibiotics
 - (C) Natural antibiotics
 - (D) None

70. Natural antibiotics are :
- (A) β - Lactams
 - (B) α - Lactams
 - (C) Non - β Lactams
 - (D) Non - α Lactams
71. She has synthesized :
- (A) Penicillin I or F
 - (B) Penicillin II or G
 - (C) Penicillin IV or K
 - (D) Penicillin V
72. In a Penicillin type 'R' is found to be - $\text{CH}_2 - \text{O} - \text{C}_6\text{H}_5$ which kind of Penicillin is this ?
- (A) Penicillin III or X
 - (B) Penicillin I or F
 - (C) Penicillin IV or K
 - (D) Penicillin V
73. In case of Penicillin F; the alkyl chain R stand for :
- (A) - $\text{CH}_2 - \text{O} - \text{C}_6\text{H}_5$
 - (B) - $\text{CH}_2 - \text{C}_6\text{H}_5$
 - (C) - $(\text{CH}_2)_6 - \text{CH}_3$
 - (D) - $\text{CH}_2 - \text{CH} = \text{CH} - \text{CH}_2 - \text{CH}_3$
74. Antibiotic is obtained from micro- organism which :
- (A) Enhances microbial growth
 - (B) Has no effect on microbial growth
 - (C) Inhibits microbial growth
 - (D) None

75. The change in molar refractivity of substituents .
- (A) Changes steric aspect of substituent
 - (B) Have no effect on steric aspect of substituent
 - (C) Both are True
 - (D) Both are False
76. The drug activity is influenced by the steric factor . A bulky group generally reduces activity the above sentence is :
- (A) True
 - (B) False
 - (C) Incomplete
 - (D) None
77. In aromatic compounds the sigma value for a substituent changes with the position of the substituents this sentence is :
- (A) True
 - (B) False
 - (C) Incomplete
 - (D) None
78. To understand electronic factor of any substituent in aromatic or aliphatic compound, we need :
- (A) Hammett substitution constant
 - (B) Steric factor
 - (C) Both
 - (D) None

79. Log P Value for P – bromo anisole is :
- (A) - 1.97
 - (B) + 1.97
 - (C) -2.97
 - (D) +2.97
80. Substituent hydrophobicity constant (π_x) for a substituent x is given by which of the following relation :
- (A) $\pi_x = \log P_x - \log P_H$
 - (B) $\pi_x = \log P_x + \log P_H$
 - (C) $\pi_x = \log P_x \cdot \log P_H$
 - (D) None
81. With increase in log P Value the activity of the drug increases up to optimum log P Value and then falls. The sentence is :
- (A) True
 - (B) False
 - (C) Sometime true and sometime false
 - (D) None
82. Hydro phobicity the drug molecule can be estimated using :
- (A) Differential value of P
 - (B) Partial differential Value of P
 - (C) Log P Value of P
 - (D) None
83. Which of the following is correct .
- (A) Skeletal pharmacophore can be derived from non- skeletal pharmacophore
 - (B) Non- skeletal pharmacophore can be derived from skeletal pharmacophore
 - (C) Both
 - (D) None

84. Which of the following better determine the pharmacophore :
- (A) Based on bioactive conformation of drug
 - (B) Conformation in which it binds to the target
 - (C) Both
 - (D) None
85. Choose the correct answer from the following :
- (A) Pharmacophore is always derived from bioactive conformations
 - (B) Pharmacophore tells about required functional group
 - (C) Both are correct
 - (D) None
86. Which of the following is wrong :
- (A) Encapsulation of drug is done by biodegradable polymer
 - (B) The Micro encapsulation contains aqueous core filled with drug
 - (C) They are identical to Nano- particles except that they are larger in size
 - (D) None
87. Pre- mature degradation of drug is protected by :
- (A) Liposomes
 - (B) Niosomes
 - (C) Both
 - (D) None
88. Which of the following is a type of Transdermal drug delivery system :
- (A) Niosomes
 - (B) Sonophoresis
 - (C) Nano particles
 - (D) All

89. Liposomes belongs to which type of drug delivery system :
- (A) Carrier based
 - (B) Transdermal
 - (C) Drug based
 - (D) None
90. Which of the following are used in a drug delivery system as a carriers?
- (A) Soluble Polymers
 - (B) Micro- Particles of bio- degradable material
 - (C) Liposomes
 - (D) All
91. Which of the following is not a form of immunotherapy :
- (A) Mono clonal antibodies
 - (B) Immune check point inhibitors
 - (C) Cancer Vaccines
 - (D) None
92. Which of the following is the synthetic antibody given in breast cancer :
- (A) Trastuzumab
 - (B) Bexa rotene
 - (C) Both
 - (D) None
93. Immune system get failed for cancer cells because :
- (A) Cancer cells divide rapidly
 - (B) Immune system is not strong enough to destroy cancer cells
 - (C) Immune system can not recognize cancer cells
 - (D) All

94. Our immune system :
- (A) Protect us from Various infections
 - (B) Protect us from cancer infection
 - (C) Both
 - (D) None
95. Gene therapy is used for :
- (A) Adenine deaminase deficiency
 - (B) Hemophilia
 - (C) Both
 - (D) None
96. Gene therapy is not possible in case of person related to :
- (A) Monogene
 - (B) Multiple gene
 - (C) Both
 - (D) None
97. One of the important disadvantage of gene therapy is :
- (A) Long Lived Nature
 - (B) Short Lived Nature
 - (C) Can not be explained
 - (D) None
98. In Gold bullet technique, gold bullets are used carrying the therapeutic :
- (A) RNA
 - (B) Protein
 - (C) DNA
 - (D) All

99. In liposomal preparation, the artificial lipid sphere is used with :
- (A) Oil core
 - (B) An aqueous core
 - (C) Both
 - (D) None
100. Non-Viral Vectors can be used in :
- (A) Gene therapy
 - (B) Chemo therapy
 - (C) Radio therapy
 - (D) All

DO NOT OPEN THE QUESTION BOOKLET UNTIL ASKED TO DO SO

1. Examinee should enter his / her roll number, subject and Question Booklet Series correctly in the O.M.R. sheet, the examinee will be responsible for the error he / she has made.
 2. **This Question Booklet contains 100 questions, out of which only 75 Question are to be Answered by the examinee. Every question has 4 options and only one of them is correct. The answer which seems correct to you, darken that option number in your Answer Booklet (O.M.R ANSWER SHEET) completely with black or blue ball point pen. If any examinee will mark more than one answer of a particular question, then the first most option will be considered valid.**
 3. Every question has same marks. Every question you attempt correctly, marks will be given according to that.
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