

Roll No.-----

**Paper Code**

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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

**A**

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

6. Anxiolytic is a drug which belongs to group-
- (A) Antipyretics
  - (B) Pain killers
  - (C) Psychoactive
  - (D) None
7. Dispensing of medication is regulated by government into which category :
- (A) Over- the- Counter
  - (B) Behind- the Counter
  - (C) Prescription only medicines
  - (D) All
8. 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
9. A test which is performed outside the living organism is called :
- (A) In Vivo
  - (B) In Vitro
  - (C) In Viro
  - (D) None
10. 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

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

16. 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
17. Enzyme inhibitors interact :
- (A) Covalently with enzymes
  - (B) Non- Covalently with enzymes
  - (C) By co-ordinate bond with enzymes
  - (D) None
18. 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
19. The site other than the active site is called :
- (A) Inactive site
  - (B) Allosteric site
  - (C) Surface active site
  - (D) None
20. 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

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

26. A drug should be :
- (A) Highly hydrophilic
  - (B) Highly hydrophobic
  - (C) Moderate nature of above two character
  - (D) None
27. 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
28. Drugs which are not bounded by plasma protein can reach :
- (A) Faster
  - (B) Slower
  - (C) Cannot be said confirmly
  - (D) None
29. The drugs which are highly hydrophobic often gets :
- (A) Absorbed in fatty tissues
  - (B) Do not reach their target
  - (C) Both
  - (D) None
30. 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

31. Which of the following drug increases the activity of cytochrome P-450 enzyme :
- (A) Cimetidine
  - (B) Phenobarbital
  - (C) Both
  - (D) None
32. 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
33. 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
34. The combined influence of affinity and efficacy is called as :
- (A) Potency of drug
  - (B) Potency of drug
  - (C) Metabolism of drug
  - (D) None
35. Minimum inhibitory concentration depends on the :
- (A) Micro-organism
  - (B) Affected human being
  - (C) Antibiotic effect
  - (D) All

36. The purpose of measuring the minimum inhibitory concentration is to ensure to drugs :
- (A) Efficiency
  - (B) Inhibitory effect
  - (C) Affinity
  - (D) Efficacy
37. In scat chard plot, the slope is given by :
- (A) Slope = 0
  - (B) Slope =  $-\frac{1}{\text{Dissociation}}$
  - (C) Slope =  $+\frac{1}{\text{Dissociation}}$
  - (D) None
38. Inhibition curve is :
- (A) Linear
  - (B) Parabolic
  - (C) Sigmoid
  - (D) None
39. Anti-bacterial compounds are classified as :
- (A) Bactericidal
  - (B) Bacteriophilic
  - (C) Bacteriophobic
  - (D) All
40. Potency of drug is normally expressed as :
- (A) C<sub>50</sub> - Value
  - (B) IP<sub>50</sub> - Value
  - (C) P<sub>50</sub> - Value
  - (D) IC<sub>50</sub> - Value

41. 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
42. Different Lactum antibiotics may be synthesized by :
- (A) Penicillin G
  - (B) Paracetamol
  - (C) Both
  - (D) None
43. 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
44. Asymmetrical synthesis refers to the :
- (A) In appropriate synthesis of enantiomer
  - (B) Selective synthesis of a particular enantiomer
  - (C) Both
  - (D) None
45. Mirror image and non super imposable are called :
- (A) Isomers
  - (B) Polymers
  - (C) Disteriomers
  - (D) Enantiomers

46. Disteriomers can be separated by :
- (A) Distillation
  - (B) Crystallization
  - (C) Both
  - (D) None
47. 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
48. Ampicillin may be prepared from the following :
- (A) D-phenylglycine
  - (B) Phenylglycine
  - (C) Both
  - (D) None
49. In gene therapy what is altered by the addition of genes :
- (A) Chromosomes
  - (B) Chlorophyll
  - (C) Mitrochonolria
  - (D) None
50. Which of the following virus is used as viral virus :
- (A) Adeno-Virus
  - (B) Adeno-Associated Virus
  - (C) Both
  - (D) None

51. Non-Viral Vectors can be used in :
- (A) Gene therapy
  - (B) Chemo therapy
  - (C) Radio therapy
  - (D) All
52. In liposomal preparation, the artificial lipid sphere is used with :
- (A) Oil core
  - (B) An aqueous core
  - (C) Both
  - (D) None
53. In Gold bullet technique, gold bullets are used carrying the therapeutic :
- (A) RNA
  - (B) Protein
  - (C) DNA
  - (D) All
54. One of the important disadvantage of gene therapy is :
- (A) Long Lived Nature
  - (B) Short Lived Nature
  - (C) Can not be explained
  - (D) None
55. Gene therapy is not possible in case of person related to :
- (A) Monogene
  - (B) Multiple gene
  - (C) Both
  - (D) None

56. Gene therapy is used for :
- (A) Adenine deaminase deficiency
  - (B) Hemophilia
  - (C) Both
  - (D) None
57. Our immune system :
- (A) Protect us from Various infections
  - (B) Protect us from cancer infection
  - (C) Both
  - (D) None
58. 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
59. Which of the following is the synthetic antibody given in breast cancer :
- (A) Trastuzumab
  - (B) Bexa rotene
  - (C) Both
  - (D) None
60. Which of the following is not a form of immunotherapy :
- (A) Mono clonal antibodies
  - (B) Immune check point inhibitors
  - (C) Cancer Vaccines
  - (D) None

61. 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
62. Liposomes belongs to which type of drug delivery system :
- (A) Carrier based
  - (B) Transdermal
  - (C) Drug based
  - (D) None
63. Which of the following is a type of Transdermal drug delivery system :
- (A) Niosomes
  - (B) Sonophoresis
  - (C) Nano particles
  - (D) All
64. Pre- mature degradation of drug is protected by :
- (A) Liposomes
  - (B) Niosomes
  - (C) Both
  - (D) None
65. 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

66. 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
67. 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
68. 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
69. 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
70. 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

71. Substituent hydrophobicity constant ( $\pi_x$ ) 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
72. Log P Value for p – bromo anisole is :
- (A) - 1.97
  - (B) + 1.97
  - (C) -2.97
  - (D) +2.97
73. 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
74. 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

75. 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
76. 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
77. Antibiotic is obtained from micro- organism which :
- (A) Enhances microbial growth
  - (B) Has no effect on microbial growth
  - (C) Inhibits microbial growth
  - (D) None
78. 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)  $-\text{CH}_2-\text{CH}=\text{CH}-\text{CH}_2-\text{CH}_3$
79. 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

80. She has synthesized :
- (A) Penicillin I or F
  - (B) Penicillin II or G
  - (C) Penicillin IV or K
  - (D) Penicillin V
81. Natural antibiotics are :
- (A)  $\beta$  – Lactams
  - (B)  $\alpha$  - Lactams
  - (C) Non –  $\beta$  Lactams
  - (D) Non –  $\alpha$  Lactams
82. Cephalosporin's are :
- (A) Synthetic antibiotics
  - (B) Semi synthetic antibiotics
  - (C) Natural antibiotics
  - (D) None
83. Which of the following antibiotics is not synthetic :
- (A) Oxazolidinone's
  - (B) Fluoroquinolones
  - (C) Cephalosporin's
  - (D) Polymixins
84. Aminoglycosides are :
- (A) First Generation antibiotics
  - (B) Second generation antibiotics
  - (C) Third generation antibiotics
  - (D) None

85. Pseudo monas entero bacteriaccac bacteria are gram :
- (A) Positive bacteria
  - (B) Negative bacteria
  - (C) Mixture of above two
  - (D) None
86. The first and second generation antibiotics are mostly effective against gram :
- (A) Positive bacteria
  - (B) Negative bacteria
  - (C) Mixture of above two
  - (D) None
87. 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
88. Which of the following drug modulates over production of vasoconstrictor peptide angiotensin – II .
- (A) Cardiac glycosidic
  - (B) Hypotensive drug
  - (C) Hypertensive drug
  - (D) None

89. Digoxin is a :
- (A) Cardiac glycoside drug
  - (B) Hypotensive drug
  - (C) Antiarrhythmic drug
  - (D) None
90. 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
91. The drug given to the patient in case of angina pain is :
- (A) Prenylanine
  - (B) Buphenine
  - (C) Both
  - (D) None
92. Vasopressor drugs are related to :
- (A) Heart Failure
  - (B) Heart attack
  - (C) Angina pain
  - (D) High blood pressure
93. The drug which binds to the major groove or minor groove of DNA is :
- (A) Doxorubicin
  - (B) Daunomycin
  - (C) Both
  - (D) None

94. Which of the following is a type of Psycho active drugs :
- (A) Adrenergic
  - (B) Cholinergic
  - (C) Dopaminergic
  - (D) All
95. Which of the following drug is used for Alzheimer's disease :
- (A) Cholinergic
  - (B) Adrenergic
  - (C) Both
  - (D) None
96. DNA chain cutter, a type of anticancer agent work by generating :
- (A) Carbocation
  - (B) Nitroniumion
  - (C) Free radical
  - (D) Proton acceptor
97. Anti- HIV agents are mainly :
- (A) HIV protease
  - (B) HIV reverse transcriptase
  - (C) HIV integrase
  - (D) All
98. Example of HIV drugs is :
- (A) E Fa vivenz
  - (B) Azidothymidine
  - (C) Both
  - (D) None

99. 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
100. Non -  $\beta$ -lactum antibiotics are derived from :
- (A) Penicillin's
  - (B) Tetracycline's and Aminoglycosides
  - (C) Both
  - (D) None

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**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.
  4. Every answer should be marked only on Answer Booklet (O.M.R ANSWER SHEET). Answer marked anywhere else other than the determined place will not be considered valid.
  5. Please read all the instructions carefully before attempting anything on Answer Booklet (O.M.R ANSWER SHEET).
  6. After completion of examination please hand over the Answer Booklet (O.M.R ANSWER SHEET) to the Examiner before leaving the examination room.
  7. There is no negative marking.
- Note:** On opening the question booklet, first check that all the pages of the question booklet are printed properly in case there is an issue please ask the examiner to change the booklet of same series and get another one.