

NIPER JEE 2013

1. Using the FDA bioequivalence rule, how much variation could a generic drug potentially have from an innovator and still be considered equivalent?
 - A) 10%
 - B) 20%
 - C) 30%
 - D) 40%

2. Which of the following descriptions is CORRECT about gyrase?
 - A) Gyrase is a type I topoisomerase.
 - B) Gyrase requires ATP for its catalysis.
 - C) Gyrase only relaxes supercoiled DNA.
 - D) Gyrase is well conserved from bacteria to human.

3. In March 2012, India granted its first compulsory license for anti-cancer drug by Indian Patent office to:
 - A) Khandelwal Lab
 - B) Natco Vs Bayer
 - C) Panacea Biotech
 - D) Sandoz Vs GSK

4. Why is penicillin G sensitive to acid and enzyme-catalyzed hydrolysis?
 - A) Ring strain
 - B) A reactive β -lactam carbonyl group
 - C) Nucleophilic influence of the acyl side chain
 - D) All of the answers are correct

5. Which of the following drugs interacts selectively with a specific subtype of the benzodiazepine receptor and is used to treat insomnia?
 - A) Alprazolam
 - B) Flumazenil
 - C) Zolpidem
 - D) Chlordiazepoxide

6. Tropane system is fusion of:

- A) Pyrrolidine and piperidine
- B) Pyrrolidine and pyrimidine
- C) Pyrrole and pyrazine
- D) Thiophene and piperidine

7. DNA in mammal cells is also present in:

- A) Mitochondria
- B) Vesicles
- C) Endoplasmic reticulum
- D) Golgi complex

8. The composition of Silica gel G is:

- A) Silica gel without binder
- B) Silica gel + CaSO_4
- C) Silica gel + alumina
- D) Silica gel + MgSO_4

9. Twenty different amino acids found in proteins are normally coded by:

- A) 59 codons
- B) 60 codons
- C) 61 codons
- D) 63 codons

10. DPCO is issued under which act?

- A) Drugs and Cosmetics Act
- B) Essential Commodities Act
- C) Patent Act
- D) RTI Act

11. Which one of the following is second generation H₁-antihistamine?

- A) Cetirizine
- B) Cinnarizine

- C) Pheneramine
- D) Promethazine

12. The Chairman of the Investigational New Drug (IND) Committee in India is:

- A) Drugs Controller General of India, Government of India
- B) Secretary, Department of Health Research, Government of India
- C) Directorate General of Health Sciences, Government of India
- D) Secretary, Department of Biotechnology, Government of India

13. Which of the following is not used as enteric coating material?

- A) Cellulose acetate phthalate
- B) Acrylate polymers
- C) Pectin
- D) Polyvinyl acetate phthalate

14. Which of the speculators expects the price of securities to rise in the near future?

- A) Bear
- B) Bull
- C) Stag
- D) Lame duck

15. An information gathering and managing tool that can be used to help identify potential causes of a certain problem or event is/are:

- A) Ishikawa diagram
- B) Fish bone diagram
- C) PERT-CPM
- D) A and B

16. The IPR in India is implemented with:

- A) The patent act
- B) The copyright and trademarks act
- C) The biological diversity act
- D) All of the above

17. The Freundlich adsorption isotherm can be used to model:
- A) Multilayer adsorption
 - B) Monolayer adsorption
 - C) Both
 - D) None of the above
18. For dissolution testing of implants, which apparatus is used?
- A) Type 2
 - B) Type 4
 - C) Type 7
 - D) Type 8
19. Which one is most acidic?
- A) Benzoic acid
 - B) p-methoxy benzoic acid
 - C) p-methyl benzoic acid
 - D) p-chloro benzoic acid
20. During hemoglobin recycling in the spleen, heme is initially converted into:
- A) Bilirubin
 - B) Biliverdin
 - C) Urobilin
 - D) Urobilinogen
21. Match the reactions with their names.
- | | |
|------------------------------|---|
| 1. Claisen rearrangement | P. Ketone to β -ketoester by peroxides |
| 2. Ullman reaction | Q. Phenols with δ -keto esters to coumarins |
| 3. Baeyer-Villiger oxidation | R. Allyl vinyl ether to γ,δ unsaturated ketones |
| 4. Pechmann Condensation | S. Aryl halide to biphenyl |
- A) 1-R, 2-S, 3-P, 4-Q
 - B) 1-S, 2-R, 3-Q, 4-P
 - C) 1-Q, 2-S, 3-P, 4-R

D) 1-R, 2-Q, 3-S, 4-P

22. Match the drugs with mode of action.

1. Carvedilol - P. β_1 antagonist
2. Nebivolol - Q. Non-selective beta and Na channel blocker, 5HT 1α -agonist
3. Atenolol - R. β_1 blocker, NO mediated vasodilation
4. Pindolol - S. β_1 , β_2 and α blocker

A) 1-R, 2-S, 3-P, 4-Q

B) 1-S, 2-R, 3-P, 4-Q

C) 1-Q, 2-S, 3-P, 4-R

D) 1-R, 2-Q, 3-P, 4-S

23. Identify the virus used for gene delivery in gene therapy.

- A) Adenovirus
- B) Arbovirus
- C) Picorna virus
- D) None of the above

24. The reductions take place at which electrode?

- A) Anode
- B) Reference
- C) Cathode
- D) Alkaline

25. Deferoxamine is administered in overdose of:

- A) Iron
- B) Calcium gluconate
- C) Digoxin
- D) Beta blockers

26. Icatibant is a:

- A) Bradykinin B 2 receptor antagonist
- B) Angiotensin II agonist

- C) Angiotensin III antagonist
- D) Bradykinin agonist

27. The units for clearance are:

- A) Concentration/time
- B) Dose/volume
- C) Half-life/dose
- D) Volume/time

28. Cinnamon does not contain:

- A) Cinnamaldehyde
- B) Benzaldehyde
- C) Coumarin
- D) Tannins

29. Immunogenic reduction in nicotinic receptors leads to:

- A) Myasthenia gravis
- B) Addison's disease
- C) Grave's disease
- D) Crohn's disease

30. Marbling is a defect in:

- A) Film coating
- B) Sugar coating
- C) Microencapsulation
- D) None of the above

31. About Bombay Blood Group, true is:

- A) Lack of A, B, and H antigen on RBC
- B) Lack of A, B, and H antigen in Saliva
- C) Lack of other Blood Group Antigens
- D) Presence of Anti-A, Anti-B, and Anti-H antibody in blood

32. Which of the following drugs is a potassium channel opener?

- A) Nicorandil
- B) Hydralazine
- C) Glibenclamide
- D) Amiloride

33. Which of the following is the major immunoglobulin in human serum, accounting for 80% of the immunoglobulin pool?

- A) IgA
- B) IgD
- C) IgG
- D) IgE

34. All are short and rapid acting insulins EXCEPT:

- A) Lispro
- B) Aspart
- C) Glargine
- D) Glulisine

35. Which of the following is beneficial in NSAID-induced gastric ulcer?

- A) PGE1 agonist
- B) PGE2 agonist
- C) PGD agonist
- D) PGF2 agonist

36. All of the following hormones have cell surface receptors EXCEPT:

- A) Adrenaline
- B) Growth Hormone
- C) Insulin
- D) Thyroxine

37. A direct-acting cholinomimetic that is lipid-soluble and used in the treatment of glaucoma is:

- A) Neostigmine

- B) Bethanechol
- C) Physostigmine
- D) Pilocarpine

38. What indicators are appropriate for complexometric titrations?

- A) Potassium chromate
- B) Eriochrome black T
- C) Murexide
- D) Q, S

39. In alternative medicine, which of the following can be used for heart failure?

- A) Ginkgo biloba
- B) Neem tree extract
- C) Terminalia arjuna
- D) St. John's wort

40. Drugs banned by International Olympics Committee are all EXCEPT:

- A) Salbutamol
- B) Sodium cromoglycate
- C) Spironolactone
- D) Erythropoietin

41. Which of the following is the main active component of betel nut?

- A) Ephedrine
- B) Chlorogenic acid
- C) Hypericin
- D) Arecoline

42. A demonstration that a particular instrument or device produces results within specified limits by comparisons with those produced by a reference or traceable standard over an appropriate range of measurements is:

- A) Validation
- B) Calibration
- C) Performance qualification

D) Examination

43. What is the fall height of the tablets in the friabilator during friability testing?

- A) 6 inches
- B) 6 cm
- C) 10 cm
- D) 3 inches

44. Cypriol oil is obtained from:

- A) Nagarmotha
- B) Bach
- C) Kalijiri
- D) Kantaakari

45. Khellin is present in:

- A) Bishop's weed
- B) Bind weed
- C) Blue grass
- D) Blue berry

46. Which of the following has the least cardiotoxicity?

- A) Isoflurane
- B) Enflurane
- C) Bupivacaine
- D) Ropivacaine

47. Protection–deprotection and coupling between two amino acids components are important steps in peptide synthesis. One of the following is NOT used as a protecting group in the peptide synthesis.

- A) Benzyloxycarbonyl
- B) N, N'-dicyclohexylcarbodiimide (DCC)
- C) 9-Fluorenylmethoxycarbonyl (Fmoc)
- D) tert-Butoxycarbonyl (BOC)

48. Gutta-percha is made of:

- A) cis-poly 1,4-polyisoprene
- B) trans-poly 1,4-polyisoprene
- C) paraphenylene diamine and terephthaloyl chloride
- D) Di-isocyanate and diol

49. All of the following statements about meglitinide are true, except:

- A) Act by stimulating insulin release
- B) Decrease Postprandial Hyperglycemia
- C) Hypoglycemia is less common than with sulfonylureas
- D) Act by decreasing insulin resistance

50. In the proton NMR, in what region of the spectrum does one typically observe hydrogens bound to the aromatic ring? <https://www.pyqonline.com>

- A) 2.0-3.0 ppm
- B) 4.5-5.5 ppm
- C) 7.0-8.0 ppm
- D) 9.0-10.0 ppm

51. The major difference between typical and atypical antipsychotics is that:

- A) Atypical antipsychotics cause minimal or no increase in prolactin
- B) Typical antipsychotics cause tardive dyskinesia
- C) Typical antipsychotics are available as parenteral preparations
- D) Atypical antipsychotics cause substantial sedation

52. Which of the following is used to decrease the toxicity of amphotericin B?

- A) Dose reduction
- B) Liposomal delivery systems
- C) Supplementing glucose
- D) Giving it along with flucytosine

53. Which of the following is nonpatentable as per Indian Patents ACT, 1970?

- A) A new method of cardiac bypass surgery

- B) A genetically modified microorganism
- C) A novel machine for recording of ECG
- D) A novel method of extraction from a known plant drug

54. A bioinformatics tool used to find the sequence similarity in the subunit of hemoglobin is:

- A) FASTA
- B) HUMMER
- C) PSI-PLOT
- D) BLAST

55. Alkalinization of urine is done during administration of which of the following chemotherapeutic drugs?

- A) Methotrexate
- B) Ara-C
- C) Cisplatin
- D) Ifosfamide

56. A nucleic acid was analyzed and found to contain 32% adenine, 18% guanine, 17% cytosine, and 33% thymine. The nucleic acid must be:

- A) Single-stranded RNA
- B) Single-stranded DNA
- C) Double-stranded RNA
- D) Double-stranded DNA

57. Which of the following substances acts to increase the release of Ca^{2+} from endoplasmic reticulum?

- A) Inositol triphosphate
- B) Parathyroid hormone
- C) 1,25-dihydroxycholecalciferol
- D) Diacylglycerol

58. Match the plants with their families.

- 1. Theobroma cocoa - P. Palmae
- 2. Areca catechu - Q. Apocynaceae

3. Hallorheantidyssentrica - R. Liliaceae

4. Veratrum album - S. Sterculiaceae

A) 1-S, 2-R, 3-Q, 4-P

B) 1-R, 2-S, 3-P, 4-Q

C) 1-S, 2-P, 3-Q, 4-R

D) 1-Q, 2-P, 3-S, 4-R

59. Fluoride, used in the collection of blood samples for glucose estimation to prevent glycolysis in the blood sample, inhibits the enzyme:

A) Glucokinase

B) Hexokinase

C) Enolase

D) Glucose-6-phosphatase

60. International Bureau of World Intellectual Property Organisation is:

A) New York

B) Geneva

C) Zurich

D) Toronto

61. The company's nationality is decided by its:

A) Shareholders

B) Registered office

C) Place where books of accounts are kept

D) None of the above

62. Which β -blocker also releases NO?

A) Atenolol

B) Carvidilol

C) Nebivolol

D) Sotalol

63. Peyer's patches are found in the:

- A) Duodenum of the small intestine
- B) Ileum of the small intestine
- C) Large intestine
- D) Jejunum of the small intestine

64. All of the following antiepileptic agents act via Na⁺ channel EXCEPT:

- A) Vigabatrin
- B) Phenytoin
- C) Valproate
- D) Lamotrigine

65. Drug used as a nervine tonic:

- A) Senega
- B) Mordica
- C) Ginseng
- D) Brahmi

66. Vitamin A is stored in:

- A) Liver
- B) Skin
- C) Retina
- D) Kidney

67. A piece of information that allows a website to record one's comings and goings is called a:

- A) Browser
- B) Cookie
- C) Worm
- D) Macro virus

68. For imported formulations, the margin to cover selling and distribution expenses including interest and importer's profit shall not exceed ____ of the landed cost.

- A) 25%
- B) 50%

- C) 75%
- D) 100%

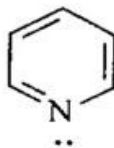
69. Which structures are aromatic?



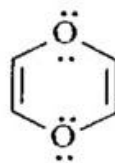
I



II



III



IV

- A) II, III
- B) III, IV
- C) I, III
- D) II, IV

70. Which of the following analyte characteristics would make analysis by gas chromatography a poor choice?

- A) Thermally unstable at column temperatures
- B) Present as a liquid at room temperature
- C) Contains a polar functional group
- D) Contains no $-\text{CH}_2-$ groups

71. Which of the following concepts explains why tertiary carbocations are more stable than primary and secondary carbocations?

- A) Electronegativity
- B) Resonance
- C) Hyperconjugation
- D) Aufbau principle

72. **SCCO** works under the Ministry of:

- A) Health and Family Welfare
- B) Human Resources
- C) Chemicals and Fertilizers
- D) Commerce

73. Which statement is WRONG?

- A) Ortho, para directing groups are electron-donating groups; meta directing groups are electron-withdrawing groups.
- B) The halide ions, which are electron-withdrawing, hence are meta directing.
- C) All activating groups are electron-donating groups.
- D) All deactivating groups are electron-withdrawing groups.

74. Name the reaction used to convert carbonyl compound to alkene.

- A) Wittig reaction
- B) Wolff Kishner reduction
- C) Willgerodt Reaction
- D) Wurtz reaction

75. A very common interference for the glass pH electrode is:

- A) F
- B) Si
- C) Br
- D) Na⁺

76. Which of the following drugs cause Torsades de pointes?

- A) Antiarrhythmic class IA agents (e.g., quinidine, procainamide, disopyramide)
- B) Antiarrhythmic class IC agents (e.g., encainide, flecainide)
- C) Antiarrhythmic class III agents (e.g., sotalol, amiodarone)
- D) All of the above

77. US-FDA opened office in New Delhi in:

- A) 2011
- B) 2010
- C) 2009
- D) 2008

78. What is antonym of MERCURIAL:

- A) Emotionally stable

- B) Bitterly rancorous
- C) Embarrassingly sordid
- D) Constantly morose

79. What is the major organic product which results when cycloheptene is irradiated in the presence of N-bromosuccinimide?

- A) 1-bromocycloheptene
- B) 2-bromocycloheptene
- C) 1,2-dibromocycloheptane
- D) 3-bromocycloheptene

80. Find the number in the sequence: 3, 18, 43, 78, 123, ?

- A) 169
- B) 178
- C) 163
- D) 153

81. Which of the following does NOT have a broad absorption with one or more spikes that is centered about 3300 cm^{-1} in the IR?

- A) $(\text{CH}_3\text{CH}_2\text{CH}_2)_2\text{N}$
- B) $(\text{CH}_3\text{CH}_2\text{CH}_2)_2\text{NH}$
- C) $\text{CH}_3\text{CH}_2\text{CH}_2\text{NH}_2$
- D) $(\text{CH}_3)_3\text{CNH}_2$

82. The first product patent in India was granted to:

- A) Roche
- B) Novartis
- C) Glenmark
- D) None of the above

83. For extended release tablet of high water-soluble drug, HPMC used as release retardant will be all EXCEPT:

- A) Methocel K100LV CR
- B) Methocel K4M CR

C) Methocell K15 CR

D) Methocell K100M CR

84. Match the disease and the composition of vaccine used in its prophylaxis.

- 1. Diphtheria - P. Killed bacteria
- 2. Pneumococcal pneumonia - Q. Attenuated bacteria
- 3. Tuberculosis - R. Toxoid
- 4. Cholera - S. Purified polysaccharide
- 5. Typhoid - T. Genetically attenuated bacteria

A) 1-R, 2-S, 3-Q, 4-P, 5-T

B) 1-T, 2-S, 3-P, 4-Q, 5-R

C) 1-T, 2-P, 3-Q, 4-R, 5-S

D) 1-Q, 2-T, 3-S, 4-R, 5-P

85. Which type(s) of polyunsaturated fatty acid cannot be biosynthesized by humans?

A) $\omega-3$

B) $\omega-6$

C) $\omega-9$

D) $\omega-3$ and $\omega-6$

86. What is the wavelength of sodium D-line in polarimeter?

A) 589.3 nm

B) 489.3 nm

C) 389.3 nm

D) 289.3 nm

87. Which of the following is NOT governed by Kelvin equation for nanoparticles?

A) Vapour pressure

B) Gas adsorption

C) Solubility

D) Melting temperature

88. p53 is a _____.

- A) Transcription factor
- B) Tumor suppressor
- C) Proline-rich protein
- D) All of the above

89. The organizational pyramid is commonly called the:

- A) Framework
- B) Bureaucracy
- C) Hierarchy
- D) Structure

90. ____ plans might be referred to as 'what-if' plans.

- A) Strategic
- B) Standing
- C) Contingency
- D) Single-use

91. All of the following bacteria can survive inside phagocytes EXCEPT:

- A) *Strep. pneumoniae*
- B) *Mycobacterium tuberculosis*
- C) *Yersinia enterocolitica*
- D) *Salmonella typhi*

92. Etanercept produces its antirheumatic effects by direct:

- A) Inhibition of cAMP phosphodiesterase in monocytic lineage leukocytes
- B) Selective inhibition of COX-2
- C) Enhancement of leukotriene synthesis at the expense of prostaglandin synthesis
- D) Reduction of circulating active TNF- α levels

93. What are the absolute configurations of the chiral carbons in the given compound?

- A) 2R, 3R
- B) 2S, 5S
- C) 2R, 5S

D) 2S, 5R

94. What is the major product formed when anisole is treated with isobutyl chloride and aluminum chloride?

- A) Para-isobutylanisole
- B) Ortho-isobutylanisole
- C) Meta-isobutylanisole
- D) Meta-butylanisole

95. The correct order of reactivity of carboxylic acid derivatives towards nucleophilic reaction is:

- A) Acyl chloride > amide > ester > anhydride
- B) Acyl chloride > anhydride > amide > ester
- C) Acyl chloride > anhydride > ester > amide
- D) Ester > amide > acyl chloride > anhydride

96. Zinc-finger peptide motifs are responsible for what aspect of protein function?

- A) Kinase activity
- B) DNA binding
- C) mRNA splicing
- D) DNA replication

97. Choose the word or phrase that is opposite in meaning to the word 'UNTOWARD':

- A) Proper
- B) Inevitable
- C) Industrious
- D) Experienced

98. Cyclopentadiene is unusually acidic for a hydrocarbon. Why?

- A) Cyclopentadiene is aromatic.
- B) Cyclopentadiene is an unstable diradical.
- C) The conjugate base of cyclopentadiene is aromatic.
- D) The conjugate base of cyclopentadiene is an unstable diradical.

99. Penicillamine is administered as an antidote for poisoning with:

- A) Opioids
- B) Antimuscarinic drugs
- C) Carbon monoxide
- D) Copper, gold, lead, and mercury

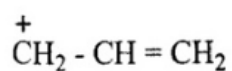
100. If $(1.001)^{1259} = 3.52$ and $(1.001)^{2062} = 7.85$, then $(1.001)^{3321} =$

- A) 27.64
- B) 11.37
- C) 4.33
- D) 2.23

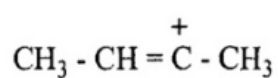
101. Which reagent gives a non-stereospecific reaction with alkenes?

- A) Cl_2
- B) $\text{Br}_2/\text{H}_2\text{O}$
- C) HBr
- D) OsO_4

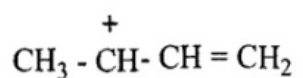
102. Which of the following represents allylic carbocation?



I



II



III

- A) I only
- B) I and II
- C) I and III
- D) II only

103. Chemokine co-receptor for HIV found on macrophage is:

- A) CD4
- B) CCR5
- C) CXCR4
- D) CD8

104. In lyophilized sterile powders, eutectic temperature of most organic compounds is in the range of:

- A) -1°C to -12°C
- B) -12°C to -20°C
- C) -20°C to -30°C
- D) -30°C to -40°C

105. Ostwald ripening effect is related to:

- A) Crystal bridging
- B) Sedimentation rate
- C) Coagulate formation
- D) Interfacial tension

106. The main difference between a dihydropyridine and a non-dihydropyridine calcium antagonists:

- A) Site of action on L-type calcium channels
- B) Duration of action
- C) Oral bioavailability
- D) Vascular selectivity

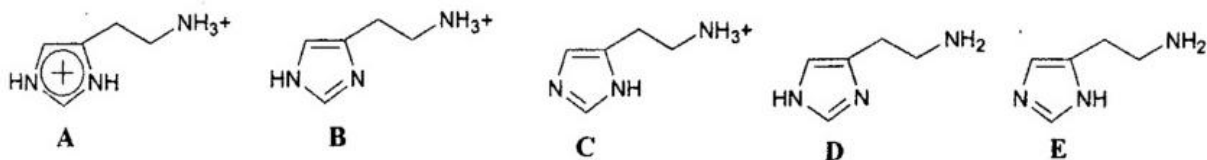
107. Which is the correct term for the inactive form of an enzyme that is often used for storage or transport?

- A) Cofactor
- B) Zymogen
- C) Apoenzyme
- D) Coenzyme

108. In IR of phenyl acetate, the absorption band for carbonyl group is obtained at:

- A) 1800 cm^{-1}
- B) 1760 cm^{-1}
- C) 1710 cm^{-1}
- D) 1660 cm^{-1}

109. Which tautomer is most likely to bind histamine (H1/H2) receptor?



110. Clofibrate is most effective at reducing plasma levels of ____:

- A) Triglycerides
- B) LDL cholesterol
- C) HDL cholesterol
- D) Bile acids

111. Mifepristone is:

- A) Estrogen antagonist
- B) Estrogen agonist
- C) Progesterone agonist
- D) Progesterone antagonist

112. The solution for the following set of equations is:

$$5x + 4y + 10z = 13$$

$$x + 3y + z = 7$$

$$4x - 2y + z = 0$$

A) $x = 2, y = 1, z = 1$

B) $x = 1, y = 2, z = 0$

C) $x = 1, y = 0, z = 2$

D) $x = 0, y = 1, z = 2$

113. Which of the following is employed for the repeated use of enzymes in bioprocesses?

- A) Polymerization
- B) Immobilization
- C) Ligation
- D) Isomerization

114. An example of an antineoplastic drug that produces therapeutic effects by virtue of being a hormone receptor antagonist is:

- A) Imatinib
- B) Letrozole
- C) Flutamide
- D) Prednisone

115. Find the odd one out in the given group: ALRVX, EPVZB, ITZDF, OYEIK

- A) ALRVX
- B) EPVZB
- C) ITZDF
- D) OYEIK

116. Among the compounds given below which one exhibits a sharp band at around 3300 cm^{-1} in the IR spectrum?

- A) 1,2-Butadiene
- B) 1,3-Butadiene
- C) 1-Butyne
- D) 2-Butyne

117. Which one of the following options is the closest in meaning to the word 'Latitude'?

- A) Eligibility
- B) Freedom
- C) Coercion
- D) Meticulousness

118. A disaccharide that will not give Benedict's test and will not form osazone is:

- A) Maltose
- B) Lactose
- C) Cellobiose
- D) Sucrose

119. Which of the following toxicological agent: antidote pair is NOT correct?

- A) Cyanide : Sodium nitrite
- B) Warfarin : Protamine

- C) Methanol : Ethanol
- D) Lead : Calcium EDTA

120. Raju has 14 currency notes in his pocket consisting notes of only Rs. 20 notes and Rs. 10 notes. The total value of the notes is Rs. 230. The number of Rs. 10 notes that Raju has is:

- A) 5
- B) 6
- C) 9
- D) 10

121. The provisional specification of a patent application does not contain:

- A) Title
- B) Description of the invention
- C) Claim
- D) None of the above

122. Who first used the term 'nanotechnology' and when?

- A) Richard Feynman, 1959
- B) Norio Taniguchi, 1974
- C) Eric Drexler, 1986
- D) Sumio Iijima, 1991

123. The ART drug, which should be avoided in case of pregnancy is:

- A) Efavirenz
- B) Indinavir
- C) Lamivudine
- D) Zidovudine

124. Which of the following is a GLP-1 agonist?

- A) Sitagliptin
- B) Glulisine
- C) Exenatide
- D) None

125. Which of the following agents stops or slows the progression of a migraine?

- A) 5HT_{1D} agonist
- B) 5HT₂ antagonist
- C) 5HT₃ antagonist
- D) Melatonin

126. Among the following, which is the example of green synthesis?

- A) Synthesis of malachite green
- B) Friedel Crafts acylation of anisole with acetone and anhydrous acid chloride
- C) Jones' oxidation of benzyl alcohol to benzoic acid
- D) Diels-Alder reaction of furan and maleic acid in water

127. Identify the first in class drug that inhibits mycobacterial ATP synthase, approved for treatment of TB: <https://www.pyqonline.com>

- A) Bedaquiline
- B) Ciprofloxacin
- C) Artemether
- D) Halofantrene

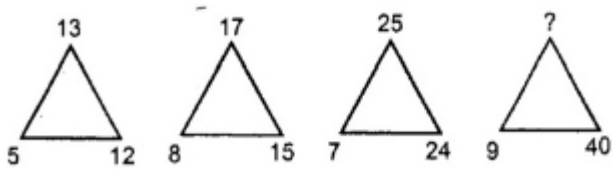
128. Which of the following relationships between absorbance and % transmittance is incorrect?

- A) $A = \log_{10} 100 / \% T$
- B) $A = 2 - \log_{10} \% T$
- C) $A = \log_{10} 1 / T$
- D) All are correct

129. The common name for pentane dioic acid is:

- A) Pimelic acid
- B) Adipic acid
- C) Glutaric acid
- D) Succinic acid

130. Find the number in the position of ?



- A) 52
- B) 50
- C) 45
- D) 41

131. Which of the following amino acids has a side chain which contains nonbasic nitrogen?

- A) Glutamine
- B) Histidine
- C) Lysine
- D) Proline

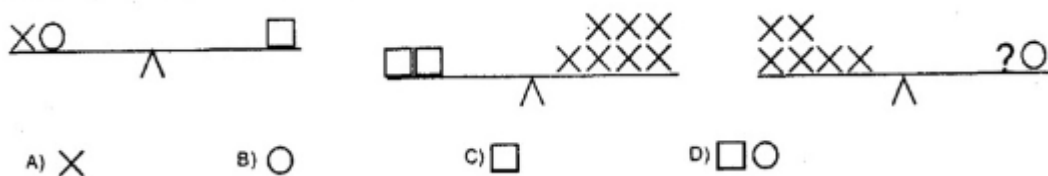
132. What is the only type of insulin that may be administered IV?

- A) NPH
- B) Detemir
- C) Lantus
- D) Regular

133. Which of the following components of a monochromator is the dispersing element?

- A) Collimating lens
- B) Entrance slit
- C) Diffraction grating
- D) None of these

134. Which symbol replaces ? in the following sequence of figures?



135. Nitroglycerine is denitrated by _____.

- A) Glutathione
- B) Glucuronidation
- C) Acetylation
- D) Hydroxylation

136. Arthus reaction is which type of hypersensitivity?

- A) Type I
- B) Type II
- C) Type III
- D) Type IV

137. If ROTUND = ROND TU, then PATATO = ?

- A) POTOTA
- B) POTOAT
- C) POOATT
- D) POOTAT

138. Which of the following most closely matches the C=C stretching frequency?

- A) 3300
- B) 3000
- C) 2200
- D) 1700

139. A nitrogen mustards alkylating agent that is a prodrug that must be first activated by hepatic P-450 to produce its active metabolites is:

- A) Mechlorethamine
- B) Mercaptopurine
- C) Doxorubicin
- D) Cyclophosphamide

140. What is the temperature optimum of Taq polymerase?

- A) 42°C
- B) 52°C

C) 72°C

D) 94°C

141. An organic compound is composed of C, H, and N. It shows a molecular ion at $m/z = 112$ amu in the mass spectrum. What is the plausible molecular formula for this compound?

A) $C_7H_{14}N_2$

B) $C_6H_{12}N_2$

C) $C_6H_{10}N_2$

D) $C_7H_{12}N_2$

142. In hybridoma technology, myeloma cells lacking HGPRT are used in HAT medium. In this medium what is the role of aminopterin?

A) To block the cell cycle in myeloma cells

B) To block the pathway for nucleotide synthesis

C) To facilitate fusion of myeloma B cells and antibody-producing cells

D) To facilitate production of antibody-producing cells.

143. Which one of the following antifungal drugs produces its effect by inhibiting sterol synthesis in fungal cells?

A) Ketoconazole

B) Caspofungin

C) Amphotericin

D) Griseofulvin

144. The movement of extracellular fluid into the cell by the process of vesicular transport is called:

A) Exocytosis

B) Receptor-mediated endocytosis

C) Pinocytosis

D) Transcytosis

145. Opalux is:

A) Enteric coating material

B) Binder

C) Color coating material

D) Polishing material

146. For which of the following methods is it most important to use an internal standard?

- A) GC with manual injection
- B) GC with autosampler injection
- C) HPLC with manual injection
- D) HPLC with autosampler injection

147. Which G protein activates adenylate cyclase?

- A) Gs
- B) Gi
- C) Gi
- D) Gq

148. The type of chromatography wherein the analyte ions in the mobile phase are attracted to the counter ions in the stationary phase is:

- A) Ion-pair chromatography
- B) Size exclusion chromatography
- C) Ion-exchange chromatography
- D) Affinity chromatography

149. Which one is the biggest company producing API?

- A) Dr. Reddy's
- B) Sun Pharma
- C) Aurobindo
- D) TAPI (Teva API)

150. COOH The given compound is which isomer?

- A) ERYTRO
- B) THREO
- C) SYN
- D) NONE

151. Proteins associated with Alzheimer's disease is:

- A) Synuclein
- B) Tau
- C) β -glucosidase
- D) α -Galactosidase

152. Circle the statement that reflects the action of amylin.

- A) Opposes the action of insulin
- B) Enhances gastric emptying
- C) Promotes glucagon release
- D) Delays gastric emptying

153. Cerebral malaria is caused by:

- A) Plasmodium vivax
- B) Plasmodium ovale
- C) Plasmodium falciparum
- D) Plasmodium malariae

154. All of the following are RNA viruses EXCEPT:

- A) Dengue
- B) Swine flu
- C) Ebola
- D) Hepatitis B

155. The peptide bond is rigid because it is a:

- A) Single bond
- B) Partial double bond
- C) Double bond
- D) Triple bond

156. In competitive inhibition:

- A) K_m increases, V_{max} constant
- B) K_m decreases, V_{max} constant

- C) K_m constant, V_{max} increases
- D) K_m decreases, V_{max} increases

157. Which natural polymer is used in the production of explosives?

- A) Carrageenan
- B) Alginate
- C) Agar
- D) Xanthine

158. Nutraceuticals available in the market from marine sources are largely from:

- A) Bacteria
- B) Fungi
- C) Diatoms
- D) Macro algae

159. In human genome, approximately ____ of the DNA codes for proteins:

- A) 10%
- B) 2%
- C) 50%
- D) 20%

60. In Parkinson's disease, there is a predominant loss of dopaminergic neurons primarily in:

- A) Substantia nigra
- B) Cerebellar cortex
- C) Cerebral cortex
- D) Locus coeruleus

161. Expanded bed adsorption chromatography runs on the principle of:

- A) Fick's law of diffusion
- B) Stoke's law of sedimentation
- C) Darcy's equation
- D) Karman and Kozney Equation

162. Glutathione is:

- A) L-Glu-Cys-Gly
- B) L-Glu-Met-Gly
- C) D-Glu-Cys-Ala
- D) D-Glu-Cys-Ala

163. Which one of the following best represents the central dogma of Bioinformatics?

- A) Sequence-Structure-Function
- B) DNA-RNA-Proteins
- C) Motifs-domains-Superfamilies
- D) Data-Databanks-Data mining tools

164. In which of the following reactions, is the unit of rate constant and rate of reaction the same?

- A) 1st order reaction
- B) 2nd order reaction
- C) 3rd order reaction
- D) Zero order reaction

165. Bird flu in last decade was caused by:

- A) H5N1
- B) H3N2
- C) H1N4
- D) H2N1

166. Unit of nth order rate constant is:

- A) $(\text{mol L}^{-1})^n \text{ sec}^{-1}$
- B) $(\text{mol L}^{-1})^{n-1} \text{ sec}^{-1}$
- C) $(\text{mol}^{-1} \text{ L})^n \text{ sec}^{-1}$
- D) $(\text{mol L}^{-1})^n \text{ sec}$

167. Blocking of 'A' site on the ribosome and inhibiting protein synthesis is the mechanism of action of:

- A) Streptomycin

- B) Tetracycline
- C) Chloramphenicol
- D) Erythromycin

168. There are 8 bags of rice looking alike, 7 of which have equal weight and 1 is slightly heavier. The weighing balance is of unlimited capacity. Using this balance, the minimum number of weighings required to identify the heavier bag is:

- A) 2
- B) 3
- C) 4
- D) 8

169. The terpene shown below is formed by isoprene units. At the wavy line, the isoprene units are joined in which fashion?

- A) Head to head
- B) Head to tail
- C) Tail to head
- D) Tail to tail

170. Which one is NOT a correct pair?

- A) Sakaguchi test: Arginine
- B) Hopkin Cole test: Tryptophan
- C) Proline: Ninhydrin test
- D) Dipeptide: Biuret test

171. Which amino acid is different in the given options?

- A) H
- B) R
- C) K
- D) W

172. Human blood is thicker than water by how many times?

- A) 3
- B) 5

C) 6

D) 7

173. Indian Medicine Pharmaceutical Corporation Limited (IMPCL), a public sector undertaking by AYUSH is located in:

A) New Delhi

B) Nagpur, MH

C) Meerut, UP

D) Mohan, Uttaranchal

174. Which fatty acid is biosynthesized by the human body?

A) Elaidic acid

B) Oleic acid

C) Linoleic acid

D) Linolenic acid

175. Iso-alloxazine nucleus is present in which compound?

A) Riboflavin

B) Clofazimine

C) Dactinomycin

D) Mangosteen

176. Which of the following statements is correct?

A) A creamed emulsion will reform on shaking.

B) A creamed emulsion will not reform on shaking.

C) A cracked emulsion will reform on shaking.

D) A phase-inverted emulsion will revert to its original form on shaking.

177. Which of the following is an inverse agonist?

A) Betacarboline

B) Cannabinoids

C) Yohimbine

D) All of the above

178. The commercial name of polyacrylonitrile is _____.

- A) Dacron
- B) Orlon
- C) PVC
- D) Bakelite

179. Choose the most appropriate word from the given options to complete the sentence Under ethical guidelines recently adopted by the Indian Medical Association, human genes are to be manipulated only to correct diseases for which _____ treatments are unsatisfactory.

- A) Similar
- B) Most
- C) Uncommon
- D) Available

180. *Convoculus pluricaulis* L. is commonly called as _____.

- A) Shatavari
- B) Gurmar
- C) Ashwagandha
- D) Shankhpushpi

181. Which of the following does not alr in the official definition of drugs in India?

- A) Prevention
- B) Mitigation
- C) Diagnosis
- D) Cure

182. The enzyme 1.1.1.1 refers to which of the following enzymes?

- A) Glutamic dehydrogenase
- B) Catalase
- C) Alcohol dehydrogenase
- D) Phosphorylase

183. Which of the following correctly lists the compounds in order of decreasing acidity?

- A) $\text{H}_2\text{O} > \text{HC}\equiv\text{CH} > \text{NH}_3 > \text{CH}_3\text{CH}_3$
- B) $\text{HC}\equiv\text{CH} > \text{H}_2\text{O} > \text{NH}_3 > \text{CH}_3\text{CH}_3$
- C) $\text{CH}_3\text{CH}_3 > \text{HC}\equiv\text{CH} > \text{NH}_3 > \text{H}_2\text{O}$
- D) $\text{CH}_3\text{CH}_3 > \text{HC}\equiv\text{CH} > \text{H}_2\text{O} > \text{NH}_3$

184. The hydroboration-oxidation reaction can be characterized as the _____ addition of water to an alkene:

- A) Anti-Markovnikov, syn
- B) Anti-Markovnikov, anti
- C) Markovnikov, syn
- D) Markovnikov, anti

185. Which of the following is a better nucleophile?

- A) Strong base
- B) Strong acid
- C) Weak base
- D) Weak acid

186. The above reaction is known as:

- A) Curtius reaction
- B) Schmidt reaction
- C) Hofmann rearrangement
- D) Lossen rearrangement

187. Which of the following reactions of alkenes is not stereospecific?

- A) Bromination (treatment with Br_2 in CHCl_3)
- B) Hydrogenation (treatment with H_2/Pt)
- C) Acid-catalyzed hydration (treatment with aqueous H_2SO_4)
- D) Bromohydrin formation (treatment with $\text{Br}_2 / \text{H}_2\text{O}$)

188. How many signals appear in the proton-decoupled ^{13}C NMR spectrum of 1,4-dibromobenzene?

- A) 1
- B) 2

C) 3

D) 4

189. Which of the following functional groups is likely to be present in a molecule that has peaks in the IR spectrum at $1630\text{--}1820\text{ cm}^{-1}$ (strong, broad), but does not have peaks at $3200\text{--}3650$ or $1000\text{--}1250\text{ cm}^{-1}$?

A) Alcohol

B) Aldehyde or ketone

C) Ether

D) Ester

190. Carbamazepine is a lipid-soluble anti-epileptic drug that has a large volume of distribution in obese patients. Which of the following statements is true of the expected carbamazepine disposition in obese patients? <https://www.pyqonline.com>

A) The elimination half-life in obese patients is expected to be decreased.

B) The elimination half-life in obese patients is expected to be increased.

C) As a result, the elimination half-life in obese patients is expected to remain the same.

D) Its volume of distribution is expected to decrease.

191. The plasma drug concentration versus time curve for a two-compartment model is:

P) Biexponential

Q) Monoexponential

R) Based on second-order pharmacokinetic processes

S) Based on first-order pharmacokinetic processes

The correct statement(s) are (is):

A) Q and S

B) Q and R

C) P and S

D) P and R

192. Which pigment is water-soluble?

A) Chlorophyll

B) Carotene

C) Anthocyanin

D) Xanthophyll

193. Choose the selective α -1 antagonist.

- A) Phentolamine
- B) Metaraminol
- C) Phenazocine
- D) Doxazosin

194. The population of a new city is 5 million and is growing at 20% annually. How many years would it take to double at this growth rate?

- A) 3-4 years
- B) 4-5 years
- C) 5-6 years
- D) 6-7 years

195. Herceptin is a brand name of:

- A) Hyperecin
- B) Heparin
- C) Trastuzumab
- D) Tamoxifen

196. What drugs do not affect warfarin metabolism?

- A) Phenobarbitone
- B) Benzodiazepines
- C) Cimetidine
- D) Rifampicin

197. At:

- A) 4%
- B) 8%
- C) 12%
- D) 16%

200. Central Pharma Public Sector Undertakings are:

- P) Indian Drugs & Pharmaceuticals Limited, Gurgaon

Q) Hindustan Antibiotics Limited, Pimpri, Pune

R) Bengal Chemicals & Pharmaceuticals Limited, Kolkata

S) Karnataka Antibiotics & Pharmaceuticals Limited, Bangalore & Rajasthan Drugs & Pharmaceuticals Limited, Jaipur.

A) P and Q

B) P, Q, and S

C) Q, R, and S

D) P, Q, R, and S

NIPER JEE 2013 ANSWER KEY

Que.	Ans.	Que.	Ans.	Que.	Ans.	Que.	Ans.	Que.	Ans.
1	D	41	D	81	A	121	C	161	D
2	B	42	B	82	A	122	C	162	A
3	B	43	A	83	A	123	A	163	A
4	D	44	A	84	A	124	C	164	D
5	C	45	A	85	D	125	A	165	A
6	A	46	D	86	A	126	D	166	B
7	A	47	B	87	C	127	A	167	B
8	B	48	B	88	D	128	C	168	A
9	C	49	D	89	C	129	A	169	B
10	B	50	C	90	C	130	D	170	C
11	A	51	B	91	A	131	A	171	D
12	A	52	B	92	D	132	D	172	C
13	C	53	A	93	C	133	C	173	D
14	B	54	D	94	C	134	C	174	B
15	D	55	A	95	A	135	A	175	A
16	D	56	D	96	B	136	C	176	A
17	B	57	A	97	A	137	A	177	A
18	B	58	C	98	C	138	C	178	B
19	D	59	C	99	D	139	D	179	D
20	B	60	B	100	A	140	C	180	D
21	A	61	B	101	C	141	B	181	D
22	B	62	C	102	C	142	B	182	C
23	A	63	B	103	B	143	A	183	A
24	C	64	A	104	C	144	C	184	A
25	A	65	D	105	A	145	C	185	A
26	A	66	A	106	D	146	A	186	B
27	D	67	B	107	C	147	A	187	C
28	C	68	B	108	B	148	C	188	B
29	A	69	C	109	B	149	D	189	B
30	B	70	A	110	A	150	A	190	B
31	A	71	C	111	D	151	B	191	C
32	A	72	A	112	B	152	D	192	C
33	C	73	B	113	B	153	C	193	D
34	C	74	A	114	C	154	D	194	A
35	A	75	D	115	D	155	B	195	C
36	D	76	D	116	C	156	A	196	B
37	D	77	D	117	B	157	B	197	D
38	C	78	A	118	D	158	D	198	C
39	C	79	D	119	B	159	B	199	A
40	B	80	B	120	A	160	A	200	D