

101/2018

Question Booklet
Alpha Code

A

Question Booklet
Serial Number

100081

Total Number of Questions : 100

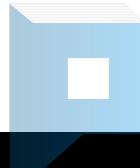
Time : 75 Minutes

Maximum Marks : 100

INSTRUCTIONS TO CANDIDATES

1. The question paper will be given in the form of a Question Booklet. There will be four versions of question booklets with question booklet alpha code viz. A, B, C & D.
2. The Question Booklet Alpha Code will be printed on the top left margin of the facing sheet of the question booklet.
3. The Question Booklet Alpha Code allotted to you will be noted in your seating position in the Examination Hall.
4. If you get a question booklet where the alpha code does not match to the allotted alpha code in the seating position, please draw the attention of the Invigilator IMMEDIATELY.
5. The Question Booklet Serial Number is printed on the top right margin of the facing sheet. If your question booklet is un-numbered, please get it replaced by new question booklet with same alpha code.
6. The question booklet will be sealed at the middle of the right margin. Candidate should not open the question booklet, until the indication is given to start answering.
7. Immediately after the commencement of the examination, the candidate should check that the question booklet supplied to him contains all the 100 questions in serial order. The question booklet does not have unprinted or torn or missing pages and if so he/she should bring it to the notice of the Invigilator and get it replaced by a complete booklet with same alpha code. This is most important.
8. A blank sheet of paper is attached to the question booklet. This may be used for rough work.
9. Please read carefully all the instructions on the reverse of the Answer Sheet before marking your answers.
10. Each question is provided with four choices (A), (B), (C) and (D) having one correct answer. Choose the correct answer and darken the bubble corresponding to the question number using Blue or Black Ball Point Pen in the OMR Answer Sheet.
11. Each correct answer carries 1 mark and for each wrong answer 1/3 mark will be deducted. No negative mark for unattended questions.
12. No candidate will be allowed to leave the examination hall till the end of the session and without handing over his/her Answer Sheet to the Invigilator. Candidates should ensure that the Invigilator has verified all the entries in the Register Number Coding Sheet and that the Invigilator has affixed his/her signature in the space provided.
13. Strict compliance of instructions is essential. Any malpractice or attempt to commit any kind of malpractice in the Examination will result in the disqualification of the candidate.

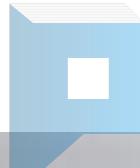
SEAL



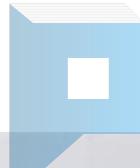
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1. In which Indian city selected by UNESCO as World Heritage Cities ?
(A) Ahmadabad (B) Mumbai (C) Kolkata (D) Hyderabad
2. The largest river in India :
(A) Yamuna (B) Brahmaputra (C) Ganga (D) Sindhu
3. The first Bullet Train Project of India connects :
(A) Mumbai - Pune (B) Ahmadabad - Mumbai
(C) Delhi - Patna (D) Delhi - Amritsar
4. Kerala State Law Reform Commission Chairman :
(A) Dr. N.K. Jayakumar (B) Sasidharan Nair
(C) Adv. M.K. Damodaran (D) Justice. K.T. Thomas
5. Azad Hind Fauj was founded by :
(A) Ras Behari Bose (B) Subash Chandra Bose
(C) Liaqat Ali (D) Maulana Azad
6. Who was regarded as the father of Indian unrest ?
(A) Mahatma Gandhi (B) Subash Chandra Bose
(C) Bal Gangadhar Tilak (D) Mohammed Ali Jinna
7. Who is the newly elected Chief Minister of Goa ?
(A) Manohar Pareekar (B) Beeran Singh
(C) Amareendar Singh (D) Trivendra Singh Ravath
8. Who is the author of the Book '*A Brief History of Time*' ?
(A) Roger Penrose (B) Jawaharlal Nehru
(C) Alan H Guth (D) Stephen Hawking
9. Which country gives citizenship to 'Sofia' Humanoid Robot ?
(A) Japan (B) Saudi Arabia (C) Israel (D) Qatar
10. The heroin of Quit India Movement :
(A) Sarojini Naidu (B) Beegam Hazrath Mahal
(C) Aruna Asafali (D) Sujetha Kripalani

SEAL



37. Enzymes which are always present in an organism are known as :
(A) Inducible enzymes (B) Constitutive enzymes
(C) Functional enzymes (D) Apoenzymes
38. Enzymes which catalyze binding of two substrate by covalent bonds known as :
(A) Lyases (B) Hydrolases (C) Ligases (D) Oxidoreductases
39. The enzyme used to treat myocardial infarction is :
(A) Streptokinase (B) LDH (C) Creatine kinase (D) Lysozyme
40. The enzyme used in the food industry to flavour cheese production ?
(A) Amylase (B) Protease (C) Lipase (D) Catalase
41. Which one of the following is not protein ?
(A) DNase (B) Abzyme (C) Eco R1 (D) Ribozyme
42. The phosphate oxygen (P:O) ratio is defined as :
(A) The moles of phosphate consumed divided by moles of oxygen consumed
(B) The moles of ATP produced divided by the milligrams of protein
(C) The moles of CO_2 produced divided by moles of O_2 consumed
(D) The moles of ATP synthesized divided by the atom equivalents of O_2 consumed
43. Inherited deficiency of β -glucuronidase causes :
(A) Tay - Sach's disease (B) Meta chromatic leukodystrophy
(C) Gaucher's disease (D) Multiple sclerosis
44. In glyoxylate cycle :
(A) Fat is converted into carbohydrate
(B) Acetyl CoA is converted into carbohydrate
(C) Oxalic acid is converted into carbohydrate
(D) Fatty acid is converted into carbohydrate
45. Ammonia is oxidized to nitrite by :
(A) Nitrobacter (B) Nitrosomonas
(C) Bacillus denitrificans (D) Azotobacter
46. Esterification of cholesterol in plasma is catalyzed by :
(A) Lecithin : Cholesterol acyl transferase
(B) Acyl CoA : Cholesterol acyl transferase
(C) Succinyl CoA : Cholesterol acyl transferase
(D) Malonyl CoA : Cholesterol acyl transferase



47. A drug which prevents uric acid synthesis by inhibiting the enzyme Xanthine oxidase :
(A) Rifampsine (B) Aspirin (C) Allopurinol (D) Digitonin
48. Which is considered the gold standard of existing vaccines ?
(A) Purified proteins (B) Whole organism
(C) Inactivated exotoxins (D) Capsular polysaccharides
49. Which one is a metabolic data base ?
(A) KEGG (B) OMIM (C) PDB (D) PIR
50. Sterilization is done by autoclave that consists of exposure to steam at about :
(A) 120°C (B) 170°C (C) 121°C (D) 116°C
51. In protein ligand docking _____ ligand are often _____ in adopting a shape to fit the receptor binding pocket.
(A) Small molecule and highly flexible
(B) Large molecule and highly flexible
(C) Large molecule and more flexible
(D) Small molecule and less flexible
52. Correlation coefficient between x and y lies in the interval :
(A) [0, 1] (B) [-1, 0] (C) [1, 00] (D) [-1, 1]
53. Find the empirical relation between the mean, median and mode :
(A) Mode = 3 median - 2 mean (B) Median = 3 mean - 2 mode
(C) Mode = 2 median - 3 mean (D) Mean = 3 median - 2 mode
54. Which of the following spectrometer techniques is the sample introduced as a solution which is nebulized under an applied electrical potential ?
(A) Fast atom bombardment (B) Electrospray ionization
(C) Electron ionization (D) Matrix assisted laser desorption ionization
55. Which of the following should be in position to split the effluent ?
(A) Interface (B) Ion source
(C) Make up gas (D) Microbore
56. The drug delivery system with the longest duration of action is :
(A) Buccal preparations (B) Depot injections
(C) Implants (D) Transdermal patches

65. Inversion temperature is the temperature :
 (A) at which Joule-Thomson coefficient changes its sign.
 (B) above which a liquid cannot be liquified.
 (C) at which a real gas behaves ideally.
 (D) at which two enantiomers interchange their rotation.

66. The clausius inequality is given by :
 (A) $ds \neq \frac{dq}{T}$ (B) $ds \geq \frac{dq}{T}$ (C) $ds \leq \frac{dq}{T}$ (D) $\frac{ds}{dT} \geq 0$

67. Variation of chemical potential with pressure and temperature can be given as :
 (A) $\left(\frac{\partial \mu}{\partial P}\right)_T = V_m$ and $\left(\frac{\partial \mu}{\partial T}\right)_P = -S_m$
 (B) $\left(\frac{\partial \mu}{\partial P}\right)_T = -V_m$ and $\left(\frac{\partial \mu}{\partial T}\right)_P = S_m$
 (C) $\left(\frac{\partial \mu}{\partial P}\right)_T = -G$ and $\left(\frac{\partial \mu}{\partial T}\right)_P = -S_m$
 (D) $\left(\frac{\partial \mu}{\partial P}\right)_S = -G$ and $\left(\frac{\partial \mu}{\partial T}\right)_P = S_m$

68. In cyclic voltammogram :
 (A) current is monitored as a function of charge.
 (B) current is monitored as a function of potential.
 (C) potential is monitored as a function of time.
 (D) current is monitored as a function of time.

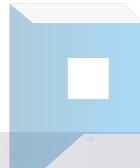
69. Bosons have :
 (A) Integral spins (B) Half integral spins
 (C) Spins always equal to zero (D) Spins always equal to $\frac{1}{2}$

70. First Nobel Prize in chemistry was awarded to :
 (A) Arrhenius (B) Grignard (C) Van't Hoff (D) Ostwald

71. Fermi energy level of an intrinsic semiconductor lies :
 (A) Close to the conduction band
 (B) Close to the valence band
 (C) Intrinsic semiconductors have no fermi levels
 (D) At the middle of the band gap



89. In IR spectra, the benzene C=C bond vibrations occur around :
- (A) 1300 cm^{-1} and 1400 cm^{-1} (B) 1500 cm^{-1} and 1600 cm^{-1}
(C) 1700 cm^{-1} and 1800 cm^{-1} (D) 2900 cm^{-1} and 3000 cm^{-1}
90. In polarography the current observed in absence of an electroactive species is :
- (A) Limiting current (B) Diffusion current
(C) Residual current (D) Half wave current
91. In UV spectroscopy, the $n \rightarrow \pi^*$ transition is characteristic of :
- (A) Unsaturated carbonyl compounds
(B) Aromatic hydrocarbons
(C) Non conjugated polyenes
(D) All the above
92. Which of the following statements regarding H^1nmr spectra is true ?
- (A) Arene C – H signals are always singlets.
(B) Arene C – H signals are always multiplets.
(C) Arene C – H chemical shift values are greater than simple alkane C – H chemical shift values because of aromatic ring current.
(D) Arene C – H chemical shift values are smaller than simple alkane C – H chemical shift values because of aromatic ring current.
93. Karl Fischer titration is used to determine :
- (A) Concentration of Cl_2 in a water sample
(B) pH of an aqueous solution
(C) Alcohol content in a water sample
(D) The water content of the sample
94. In reversed phase HPLC :
- (A) a hydrophilic stationary phase is combined with a non polar mobile phase
(B) a hydrophobic stationary phase is combined with a polar mobile phase
(C) a hydrophilic stationary phase is combined with a polar mobile phase
(D) a hydrophobic stationary phase is combined with a non polar mobile phase
95. Langmuir adsorption isotherm at high pressure can be represented as :
- (A) $\frac{x}{m} = \frac{a}{b}$ (B) $\frac{x}{m} = \frac{ab}{1 + bp}$ (C) $\frac{x}{m} = ap$ (D) $\frac{x}{m} = \frac{1 + b}{a}$



96. The correct order of coagulating ions for the coagulation of colloidal Ferric hydroxide is :
- (A) $\text{Cl}^- > \text{SO}_4^{2-} > \text{PO}_4^{3-}$ (B) $\text{PO}_4^{3-} > \text{SO}_4^{2-} > \text{Cl}^-$
(C) $\text{Al}^{3+} > \text{Mg}^{2+} > \text{Na}^+$ (D) $\text{Na}^+ > \text{Mg}^{2+} > \text{Al}^{3+}$
97. A potential of -0.822 V was applied to a cell potential of -0.734 V. The internal resistance of the cell was $20.0\ \Omega$ and an initial current of $1.80\ \text{mA}$ was measured. The over potential for this cell is :
- (A) 0.076 V (B) 0.042 V (C) 0.062 V (D) 0.018 V
98. The titrant used in the diazotization method employed to assay sulpha drugs is :
- (A) Potassium Nitrate (B) Silver Nitrite
(C) Sodium Nitrate (D) Sodium Nitrite
99. The initial step in the experimental procedure for mass spectrometry is :
- (A) bombardment of sample by electron beam
(B) converting the sample into gaseous state
(C) separating the ions by passing them through electric and magnetic field
(D) splitting of the ions
100. Internal energy in terms of partition function (Q) can be given as :
- (A) $E = -kT^2 \ln Q$ (B) $E = -kT \ln Q$
(C) $E = kT^2 \left(\frac{\partial \ln Q}{\partial T} \right)_V$ (D) $E = kT^2 \left(\frac{\partial \ln Q}{\partial V} \right)_T . V$

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