

11/2019

Question Booklet
Alpha Code

A

Question Booklet
Serial Number

Total No. of Questions: 100

Time : 75 Minutes

Maximum : 100 Marks

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. Blank sheets of paper is attached to the question booklet. These 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.

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Maximum : 100 Marks

Time : 1 hour and 15 minutes

1. Which is the largest News Agency in the World ?
(A) Associated Press (B) Telam
(C) Tanjug (D) Press Trust of India
2. The Cyclone affected India, Sri Lanka and Maldives in November 2017 :
(A) BOB06 (B) Vardah
(C) Ockhi (D) Hudhud
3. In the Census of 2011 the Male literacy rate in India
(A) 65.46 (B) 74.04
(C) 81.02 (D) 82.14
4. The famous Hajjur Inscription was issued by the Ay king Karunandadakkan in the year
(A) AD 999 (B) AD 1000
(C) AD 974 (D) None of these
5. The Prime Minister Narendra Modi launched the Programme on 2nd Oct., 2014 to make clean India :
(A) Nirmal Bharat Programme (B) Swachh Bharat Abhiyan
(C) Make in India (D) Saansad Adarsh Grama Yojana
6. The first Greek Tennis player to win an ATP World Tour Title of Stockholm Open
(A) Ernest Gulbis (B) Rafael Nadal
(C) Stefanos Tsitsipas (D) Rojer Federer
7. "Mandan Muthappa" is a character created by
(A) Thoppil Bhasi (B) Vaikom Muhammed Bhasheer
(C) Thakazhi Sivasankara Pillai (D) MT Vasudevan Nair
8. The Cabinet Mission came to India to discuss transfer of power to India on
(A) 24th March, 1946 (B) 22nd March, 1942
(C) 9th August, 1942 (D) 12th August, 1945
9. The winner of Dadasaheb Phalke Award 2018
(A) Kasinathuni Viswanath (B) Manoj Kumar
(C) Shashi Kapoor (D) Vinod Khanna
10. Who was the founder of All Travancore Muslim Mahajan Sabha ?
(A) Vakkom Maulavi (B) P.K. Khadeeja
(C) Mujeeb Rahman Kinalur (D) None of these

A

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[P.T.O.]

11. The book "Poikayil Yohannan" was written by
(A) V.V. Shanthakumar (B) Komaran
(C) M.R. Renukumar (D) M.K. Sanu
12. The winner of Kendra Sahithya Academy Award 2017 for his novel "Daivathinte Pusthakam"
(A) Prabha Varma (B) K.P. Ramanunni
(C) K.R. Meera (D) R. Narayana Panicker
13. Who was the first woman Secretary General of Rajya Sabha ?
(A) Snehalatha Srivathava (B) Kiran Bedi
(C) Ramadevi (D) Kamala Beniwal
14. International Day for preventing the exploitation of Environment in War and Armed conflict
(A) November 11 (B) November 6
(C) November 5 (D) November 1
15. The Environment Protection Act was passed in the year
(A) 1988 (B) 1968
(C) 1989 (D) 1986
16. The place where 27th Fusion Energy Conference (FEC 2018) held at
(A) Gujarat (B) Delhi
(C) Maharashtra (D) Kerala
17. Who lead the Revolt of 1857 at Lucknow ?
(A) Begam Hasrat Mahal (B) Kunwar Singh
(C) Rani Lakshmi Bai (D) Khan Bahadur Khan
18. The incident prompted Gandhi to call off the Non-cooperation Movement :
(A) Wagon Tragedy (B) Jallianwalla Bagh
(C) Chauri Chaura Incident (D) Khilafat Movement
19. The most important coastal port town of Kerala during the Sangam Period :
(A) Nelkinda (B) Quilon
(C) Kozhikkode (D) Muziris
20. The social reformer who organised Kallumala Agitation in Kerala
(A) K. Kelappan (B) Ayyankali
(C) Mannath Padmanabhan (D) Vaikunda Swamikal

21. The emission of an α -particle and two β -particles in succession produces an _____ of the starting atom.
- (A) Isotope (B) Isobar
(C) Isotone (D) Isomer
22. The order of the C_{2v} point group is
- (A) 3 (B) 4
(C) 1 (D) 2
23. Among CO, NO, HCl and CO₂, that which will not yield a microwave spectrum is
- (A) CO (B) NO
(C) HCl (D) CO₂
24. The number of normal modes of vibration of C₆H₆ molecule is
- (A) 30 (B) 36
(C) 31 (D) 35
25. The π donor ligand in Ziese's salt is
- (A) Chlorine (B) Ethylene
(C) Acetylene (D) Carbonyl
26. The number of signals exhibited by the protons of TMS in its NMR spectrum is
- (A) 2 (B) 1
(C) 3 (D) 4
27. The hybridization of Nitrogen atom in NH₃
- (A) sp³ (B) sp²d
(C) sp³d (D) sp

28. Radioactive disintegration follows _____ order kinetics.
(A) First order (B) Second order
(C) Zero order (D) Third order
29. The emission of radiant energy after a time lag after its absorption by a substance is called
(A) Fluorescence (B) Phosphorescence
(C) Vibrational relaxation (D) Inter system crossing
30. The ionic character of LiCl , NaCl , KCl , RbCl and CsCl follows the order
(A) $\text{LiCl} > \text{NaCl} > \text{KCl} > \text{RbCl} > \text{CsCl}$
(B) $\text{LiCl} < \text{NaCl} < \text{KCl} < \text{RbCl} < \text{CsCl}$
(C) $\text{LiCl} = \text{NaCl} < \text{KCl} = \text{RbCl} < \text{CsCl}$
(D) $\text{NaCl} > \text{LiCl} > \text{KCl} > \text{RbCl} > \text{CsCl}$
31. Which among the following is the optical property of colloid ?
(A) Brownian movement (B) Electrophoresis
(C) Tyndal Effect (D) Electro osmosis
32. How many isoprene units are present in a monoterpene ?
(A) 3 (B) 4
(C) 2 (D) 1
33. The oxidation number of Cr in $\text{Cr}_2\text{O}_7^{2-}$ is
(A) +7 (B) +6
(C) +5 (D) +4
34. The reagent used in Benzoin condensation
(A) OH^- (B) EtO^-
(C) CN^- (D) CH_3COO^-
35. Which indicator is used in Iodometric titration ?
(A) Eriochrome Black T (B) Starch solution
(C) N-Phenyl anthranilic acid (D) Methyl Orange

36. The ligand denticity of EDTA is
(A) 6 (B) 5
(C) 4 (D) 3
37. The number of particles per unit cell of BCC is
(A) 4 (B) 2
(C) 1 (D) 6
38. The total number of crystal systems present is
(A) 8 (B) 32
(C) 7 (D) 31
39. The principle of liquid-gas chromatography is
(A) Adsorption (B) Absorption
(C) Partition (D) None of them
40. Which metal ion is present in Vitamin B-12 ?
(A) Cobalt (B) Nickel
(C) Iron (D) Copper
41. How many oxygen molecules are carried by a single Haemoglobin molecule ?
(A) 4 (B) 3
(C) 2 (D) 1
42. How many significant figures are there in the quantity 0.0063g ?
(A) 3 (B) 4
(C) 2 (D) 1
43. How many peaks are observed in the IR spectrum of CO₂ molecule ?
(A) 3 (B) 4
(C) 2 (D) 1

44. Asbestos is an example of _____ silicate.
(A) Cyclic (B) Chain
(C) Sheet (D) Three dimensional
45. Rutile is an ore of
(A) Titanium (B) Iron
(C) Aluminium (D) Zinc
46. The highest oxidation state shown by the transition element is
(A) +7 (B) +8
(C) +6 (D) +5
47. The intense violet colour of KMnO_4 is due to _____ transition.
(A) Charge transfer (B) d-d transition
(C) f-f transition (D) Lanthanide contraction
48. What is the CFSE for an octahedral high spin d^4 system ?
(A) $-12Dq$ (B) $-6Dq$
(C) $-24Dq$ (D) $-18Dq$
49. Which one of the following metal carbonyls does not obey the EAN rule ?
(A) $\text{Ni}(\text{CO})_4$ (B) $\text{Fe}(\text{CO})_5$
(C) $\text{Cr}(\text{CO})_6$ (D) $\text{V}(\text{CO})_6$
50. The co-ordination number of iron in haemoglobin
(A) 4 (B) 5
(C) 6 (D) 7
51. What designation is given to a sublevel having $n=4, l=1$?
(A) 4p (B) 4s
(C) 4d (D) 4f

52. Be shows a diagonal relationship with
(A) Al (B) Mg
(C) Si (D) Na
53. The state of hybridisation of Be in BeF_2
(A) sp^3 (B) sp^2d
(C) sp^3d (D) sp
54. But-1-ene can be converted to butane by reaction with
(A) Pd/H_2 (B) Zn/HCl
(C) $\text{Sn}-\text{HCl}$ (D) $\text{Zn}-\text{Hg}$
55. Which of the following compounds show geometrical isomerism ?
(A) Cyclopropane (B) Cyclobutane
(C) 1,2-dimethylcyclopropane (D) None of these
56. Which of the following compounds is aromatic ?
(A) Cyclobutadiene (B) Cyclooctatetraene
(C) Cyclopropene (D) Cyclopentadienyl anion
57. The monomer of natural rubber is
(A) 2-methyl-1,3-butadiene (B) 1,3-butadiene
(C) 1,3-pentadiene (D) 2-methyl-1,3-pentadiene
58. Which alkaloid is present in Hemlock seed ?
(A) Coniine (B) Quinine
(C) Piperine (D) Morphine
59. Sea water will boil at a temperature
(A) Higher than pure water (B) Lower than pure water
(C) Same as that of pure water (D) Cannot be predicted

60. Producer gas is a mixture
(A) $\text{CO} + \text{H}_2$ (B) $\text{CO} + \text{H}_2\text{O}$
(C) $\text{CO} + \text{N}_2$ (D) $\text{CO} + \text{O}_2$
61. For a spontaneous process the free energy change should be
(A) Positive (B) Negative
(C) Either positive or negative (D) Zero
62. A system which can exchange neither energy nor matter with surroundings is called
(A) Open system (B) Closed system
(C) Isolated system (D) Independent system
63. Vibrational spectra will be obtained by the absorption of :
(A) Microwave radiation (B) IR radiation
(C) Ultraviolet radiation (D) Visible radiation
64. Which point group does CO_2 molecule belongs to ?
(A) $D_{\infty h}$ (B) C_{3v}
(C) C_{2h} (D) $C_{\infty v}$
65. Which one of the following is a Zn containing enzyme ?
(A) Cytochrome P-450 (B) Tyrosinase
(C) Alcohol dehydrogenase (D) Cytochrome oxidase
66. The alkaloid used as an antimalarial drug :
(A) Atropine (B) Cocaine
(C) Quinine (D) Coniine
67. The heat of neutralisation when a strong acid is neutralised by a strong base :
(A) -57 kJ/mole (B) 57 Cals/mole
(C) -57 J/mole (D) -57 k.Cals/mole
68. Which defect causes a decrease in density ?
(A) Schottky (B) Frenkel
(C) Metal excess (D) F-centre

69. The radius ratio of octahedral void is
(A) 0.414 (B) 0.225
(C) 0.0414 (D) 0.0225
70. The pH of a 0.001 M HCl solution is :
(A) 2 (B) 3
(C) 4 (D) 1
71. How many signals would be expected in the NMR spectrum of $(\text{CH}_3)_3\text{CCl}$?
(A) One signal (B) Two signal
(C) Three signal (D) Nine signal
72. The monomer of Orlon :
(A) Formaldehyde and phenol
(B) Ethylene glycol
(C) Vinyl cyanide
(D) Adipic acid and hexamethylene diamine
73. Which of the following is a Nitro dye ?
(A) Methyl orange (B) Aniline yellow
(C) Martius yellow (D) Methyl blue
74. Which one is the strongest base among the following ?
(A) CH_3NH_2 (B) $(\text{CH}_3)_2\text{NH}_2$
(C) NH_3 (D) $(\text{CH}_3)_3\text{NH}_2$
75. Aspirin is
(A) Acetyl salicylic acid (B) Ethoxy benzoic acid
(C) Methoxy benzoic acid (D) Acetyl oxalic acid
76. Which acid is used for cleaning glass wares in the laboratory ?
(A) Sulphuric acid (B) Hydrochloric acid
(C) Nitric acid (D) Chromic acid

77. Cellulose is a linear polymer of :
(A) α -D-glucose (B) β -D-glucose
(C) D-fructose (D) Sucrose
78. Rickets is caused by the deficiency of :
(A) Vitamin-A (B) Vitamin-B
(C) Vitamin-D (D) Vitamin-K
79. The $-\text{COOH}$ group in carboxylic acid can be replaced by H atom by :
(A) Zn and HCl (B) H_2 with Ni
(C) Sodalime (D) LiAlH_4
80. Barbituric acid and its derivatives are well known
(A) Antiseptics (B) Antipyretics
(C) Tranquilizers (D) Analgesics
81. The isomers that are interconverted through rotation around a single bond are called :
(A) Epimers (B) Anomers
(C) Enantiomers (D) Conformations
82. Maleic acid and fumaric acid are the forms of :
(A) Chain isomers (B) Optical isomers
(C) Geometrical isomers (D) Epimers
83. In contact process for the manufacture of sulphuric acid, the catalyst is :
(A) Finely divided iron (B) Nickel powder
(C) LiAlH_4 (D) V_2O_5
84. BF_3 is an acid according to
(A) Arrhenius concept (B) Bronsted-Lowry concept
(C) Ostwald (D) Lewis concept

85. How many coulombs of electricity are required to produce 20.0g of calcium from molten CaCl_2 ?
- (A) 57900 C (B) 96500 C
(C) 10800 C (D) 48250 C
86. The cell constant of a cell is equal to :
- (A) a/l (B) l/a
(C) $a-l$ (D) $l-a$
87. The reduction potential of two half cells Mg^{2+}/Mg and Cu^{2+}/Cu are -2.37 V and $+0.34$ V respectively. The cell potential is
- (A) -2.03 V (B) 2.71 V
(C) 1.36 V (D) 2.3 V
88. At equilibrium state :
- (A) ΔG is positive (B) ΔH is negative
(C) ΔG is zero (D) ΔH is positive
89. The heat absorbed by the system at constant pressure is
- (A) ΔE (B) ΔH
(C) ΔG (D) ΔS
90. How many unpaired electrons are present in Cu^+ ion ?
- (A) 2 (B) 1
(C) 0 (D) 3
91. According to Hund's rule, the number of unpaired electrons in nitrogen atom will be
- (A) 2 (B) 1
(C) 5 (D) 3
92. Which type of isomerism is shown by $[\text{Co}(\text{NH}_3)_5\text{NO}_2]\text{Cl}$?
- (A) Ionisation (B) Linkage
(C) Co-ordination (D) Geometrical

93. Which one is a homopolymer ?
(A) PVC (B) Nylon 6
(C) Nylon 6,6 (D) Terylene
94. Three letters ABC can be arranged in _____ number of ways.
(A) 6 (B) 4
(C) 8 (D) 12
95. The inter nuclear distance remains constant during electronic excitation. This assumption is :
(A) Morse (B) Huckel rule
(C) Born Oppenheimer (D) Frank Condon
96. A bond stretching frequency around 1700cm^{-1} is due to
(A) C=N (B) C-Cl
(C) C=O (D) C=C
97. Which of the following is an auxochrome ?
(A) $-\text{NH}_2$ (B) $-\text{N}=\text{N}-$
(C) $-\text{C}=\text{C}-$ (D) $-\text{NO}_2$
98. For phenol-water system, the critical solution temperature is
(A) 65.1°C (B) 68.1°C
(C) 76.2°C (D) 39.5°C
99. α -helical structure refers to the _____ structure of protein.
(A) Primary (B) Secondary
(C) Tertiary (D) Quaternary
100. Bhopal Tragedy is due to :
(A) Ethyl isocyanate (B) Phenyl isocyanate
(C) Propyl isocyanate (D) Methyl isocyanate

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