062/2017

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/her 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.

1. The mass of 2 litre carbon monoxide at STP
   A) 1.6 g   B) 2.5 g   C) 2.0 g   D) 2.8 g

2. The volume occupied by one gram-equivalent of oxygen at 0° C and 550 mm Hg
   A) 7.74 litres   B) 5.6 litres
   C) 6.84 litres   D) 6.08 litres

3. 21 ml of an acid can be neutralized by 7 ml of 0.3 N alkali solution, what is the normality of acid ?
   A) 0.3 N   B) 0.2 N   C) 0.1 N   D) 0.6 N

4. If four alpha particles and two beta particles are emitted from uranium (atomic number 92). What will be atomic number of new element formed ?
   A) 100   B) 102   C) 98   D) 86

5. How many gm-moles are present in 400 gm of sodium hydroxide ?
   A) 100   B) 50   C) 10   D) 40

6. A wet stock of ammonium sulphate contains 25% on dry basis. What is the percentage of moisture present, if it is expressed in wet basis ?
   A) 30%   B) 32.5%   C) 25%   D) 20%

7. How many gram of carbon are present in 528 g of carbon dioxide ?
   A) 72 g   B) 144 g   C) 44 g   D) 1936 g

8. An automobile tyre is inflated to pressure of 175 KPa at 273 K. By controlling the pressure at 250 KPa, upto what temperature, the tyre can be heated ?
   A) 390 K   B) 350 K   C) 400 K   D) 375 K

9. The difference between the dry bulb and wet bulb temperature is known as
   A) Boiling temperature
   B) Condensing temperature
   C) Wet bulb depression
   D) Dry bulb depression

10. An example of unit process is
    A) Evaporation   B) Condensation
    C) Filtration   D) Ion-exchange

11. The residual solution from which the solute extracted is known as
    A) Raffinate   B) Residue
    C) Extract   D) Solvent

12. Find the pressure which is not equal to 1 standard atmosphere.
    A) 1.01325 bar   B) 1.01325 Pa
    C) 760 mm Hg   D) 1.01325×10^5 N/m^2

13. 1 g mole of a compound consists of
    A) One molecule of the compound   B) One atom of the compound
    C) 6.023×10^{23} molecules   D) 22.4×10^2 molecules

14. 500 kg of wet solid are to be dried from 60% to 20% moisture. How many kilograms of water removed ?
    A) 400   B) 200   C) 300   D) 100

15. Constant volume process is known as
    A) Isobaric process   B) Isothermal process
    C) Adiabatic process   D) Isochoric process

16. Aqua regia is a mixture of concentrated
    A) Nitric acid and hydrochloric acid
    B) Sulphuric acid and hydrochloric acid
    C) Sulphuric acid and nitric acid
    D) Phosphoric acid and sulphuric acid

17. Unit of viscosity is
    A) N/m^2 B) PaS   C) g/cm^2 D) N/s

18. German silver contains
    A) Germanium, Silver, Copper   B) Copper, Silver, Nickel
    C) Copper, Nickel, Zinc   D) Silver, Germanium, Gold

19. If pH value of a solution decreases from 3 to 2, then hydrogen ion concentration change by
    A) Increases 10 times   B) Decreases 20 times
    C) Remain unchanged   D) Doubles

20. Convert the 50% of methanol water mixture by weight to mole %.

A) 50 mole %   B) 36 mole %

C) 64 mole %   D) 25 mole %

21. Density of water at $0°$ C and at 1 atm pressure

A) $1000 \ kg/cm^3$ B) $1000 \ kg/cm^2$

C) $1000 \ kg/m^3$ D) $1000 \ g/cm^3$

22. Reynolds number is the ratio of

A) Viscous forces to inertial forces

B) Viscous forces to static forces

C) Static forces to viscous forces

D) Inertial forces to viscous forces

23. Terminal velocity is

A) The varying velocity

B) The initial velocity

C) The highest velocity attainable by an object in free fall

D) The relative velocity

24. Priming should be done before starting

A) Diaphragm pump   B) Reciprocating pump

C) Gear pump   D) Centrifugal pump

25. Torr is a unit of

A) Pressure   B) Velocity

C) Viscosity   D) Density

26. Average molecular weight of air

A) 79   B) 29   C) 39   D) 23

27. Mass number of an atom is the sum of the numbers of

A) Protons and neutrons

B) Protons and electrons

C) Neutrons and electrons

D) None of the above

28. An example of semiconductor

    A) Krypton   B) Xenon   C) Argon   D) Silicon

29. Thermosetting plastics are

    A) Chain molecules   B) Cross-linked molecules

    C) Simple polymers   D) None of the above

30. Teflon is the commercial name of

    A) Titanium dioxide   B) Polyvinyl chloride

    C) Polyethylene   D) Polytetrafluroethylene

31. Which is the purest form of iron ?

    A) Cast Iron   B) Wrought Iron

    C) Pig Iron   D) Steel

32. DDT is the short form of

    A) Dichloro Diphenyl Tetrachloroethane

    B) Dichloro Diphenyl Trichloromethane

    C) Dichloro Diphenyl Trichloroethane

    D) Dichloro Diphenyl Tetrachloromethane

33. Which of the following is not a noble gas ?

    A) Neon   B) Argon   C) Xenon   D) Boron

34. Octane number of gasoline indicates its

    A) Anti knocking property   B) Ignition delay

    C) Oxidation stability   D) Boiling point

35. Phosgene is

    A) Calcium chloride   B) Carbonyl sulphate

    C) Carbonyl chloride   D) Calcium carbonate

36. Vitamin C is

    A) Acetic acid   B) Ascorbic acid

    C) Riboflavin   D) Thiamine

37. Nano is equal to

A) 10^{-8} B) 10^{-10} C) 10^{-11} D) 10^{-9}

38. Litmus paper

A) Gives a spectrum of colours to acid conditions

B) Turns blue under acid conditions

C) Turns red under alkaline conditions

D) Turns blue under alkaline conditions

39. The main constituent of liquified natural gas is

A) Propane   B) Butane   C) Methane   D) Ethane

40. Visbreaking produces

A) High octane number gasoline   B) Fuel oil of lower viscosity

C) High cetane number diesel   D) More quantity of aviation oil

41. Catalyst used in catalytic reforming

A) Platinum   B) Nickel   C) Iron   D) Chromium

42. Biuret formation is in the manufacture of

A) Cement   B) Paint   C) Ceramics   D) Urea

43. Instrument which may be used for measuring small differences in pressure is

A) Inclined manometer   B) U-tube manometer

C) Bourdon gauge   D) Barometer

44. Amount of moisture in air is determined by

A) Hydrometer   B) Polarimeter

C) Hygrometer   D) Refractometer

45. Oleum gives the fumes of

A) Sulphuric acid   B) Oleum

C) Sulphur dioxide   D) Sulphur trioxide

46. Emissivity of a black body is

A) Zero   B) Infinity

C) One   D) None of the above

47. Chloroform-acetone mixture is a

    A) Minimum boiling azeotrope

    B) Maximum boiling azeotrope

    C) Does not form an azeotrope

    D) None of the above

48. Critical moisture content is a point at which

    A) Falling rate period starts   B) Constant rate period starts

    C) Falling rate period ends   D) None of the above

49. Hardness of water is expressed interms of

    A) Magnesium carbonate   B) Calcium carbonate

    C) Calcium hydroxide   D) Sodium carbonate

50. Capacity of an evaporator is

    A) Kilogram of steam fed per hour

    B) Volume of water evaporated per volume of steam fed

    C) Kilogram of water evaporated per kg of steam fed

    D) Kilogram of water vapourised per hour

51. Example of a non-Newtonian fluid

    A) Paint   B) Kerosine

    C) Glycerine   D) Sugar in water

52. Flow controlling value

    A) Gate value   B) Check value

    C) Butterfly value   D) Plug value

53. Pressure at "Vena Contracta" is

    A) Greater than the system pressure

    B) Less than the system pressure

    C) Equal to system pressure

    D) None of the above

54. The value of universal gas constant at calories per mol degree Kelvin

    A) 6.023   B) 6.236   C) 8.314   D) 1.987

55. An example of thermoplastic

 A) Polytetrafluroethylene
 B) Urea formaldehyde
 C) Phenol formaldehyde resins
 D) Epoxy resin

56. Blow down is not used for

 A) To remove inerts
 B) To prevent scale formation
 C) To reduce pressure
 D) To improve efficiency

57. Which of the following removes latent heat ?

 A) Cooler
 B) Condenser
 C) Chiller
 D) None of the above

58. The shortest centre-to-centre distance between the adjacent tubes in heat exchangers is called

 A) Clearance
 B) Pitch
 C) Baffle spacing
 D) Pass

59. The indicator used in titration involving a strong base

 A) Phenolphthalein
 B) Methyl orange
 C) Methyl red
 D) EBT

60. Which one is used as a fire fighting technique ?

 A) Removing the combustibles
 B) Blanketing
 C) Cooling
 D) All of the above

61. Addition of ozone in water treatment for

 A) Disinfection
 B) Increasing the oxygen content
 C) Decolourisation
 D) None of the above

62. Milk powder is made from milk by drying in a

 A) Band drier
 B) Drum drier
 C) Spray drier
 D) Rotary drier

63. Psychrometric chart is used for the study of properties of mixtures of

    A) Air-water   B) Ethanol-water

    C) Methanol-water   D) None of the above

64. The commonly used ratio of actual reflux to minimum reflux is

    A) 2.5   B) 1.5   C) 2.0   D) 3.0

65. Which one of the following characteristics of instrument is desirable ?

    A) Time lag   B) Dead zone

    C) Drift   D) Reproducibility

66. – 273° C is equal to

    A) Zero ° K   B) Zero ° F   C) 100° K   D) 313° K

67. Example of an over flow analysis

    A) Screening   B) Pipette analysis

    C) Beaker decantation   D) None of the above

68. Which of the following produces the smallest particle size ?

    A) Blake jaw crusher   B) Hammer mill

    C) Ball mill   D) Gyratory crusher

69. Fruit juice can be concentrated by

    A) Falling film evaporator

    B) Rising film evaporator

    C) Vertical tube evaporator

    D) Horizontal tube evaporator

70. Most effective equipment for removing fine dust particle from air

    A) Cyclone separator   B) Bag fitter

    C) Scrubber   D) Electrostatic precipitator

71. Dry ice is solid

    A) Water   B) Ethanol

    C) Carbon dioxide   D) Carbon monoxide

72. Which of the following radiation produces heat ?

    A) X-ray   B) UV ray

    C) Gamma ray   D) Infrared

73. The substance used as neutron moderator in nuclear reactor is

    A) Heavy water   B) Dry ice

    C) Liquid oxygen   D) Liquid nitrogen

74. A variable area flow meter

    A) Rotameter   B) Orifice meter

    C) Venturimeter   D) Pitot tube

75. Pasteurization of milk is done by heating 74° C for

    A) 1 minute   B) 15 seconds

    C) 3 minutes   D) 45 seconds

76. The lowest temperature at which the oil vapour ignites and continues to burn for 5 second is called

    A) Flash point   B) Cloud point

    C) Fire point   D) Pour point

77. Brass is composed of

    A) Cu-Zn   B) Cu-Fe

    C) Cu-Sn   D) Cu-Al

78. Which one of the process is used for water softening purpose ?

    A) Lime soda   B) Zeolite

    C) Ion-exchange   D) All of the above

79. Enzyme is a

    A) Catalyst in biochemical reaction   B) Living plant

    C) Poison   D) All of the above

80. Vanaspati is produced by the process of

    A) Hydrolysis   B) Hydrogenation

    C) Oxidation   D) Reduction

81. Which of the following countries signed the Indus Waters Treaty ?

   A) India-China   B) India-Myanmar

   C) India-Pakistan   D) India-Bangladesh

82. Name the territorially largest district of India.

   A) Bikaner   B) Leh

   C) Kurnool   D) Kutch

83. Which soil is also known as 'regur soil' ?

   A) Alluvial soil   B) Black soil

   C) Red soil   D) Laterite soil

84. When was the Reserve Bank of India established ?

   A) First April 1935

   B) First April 1948

   C) First April 1936

   D) First April 1950

85. In which year was the Mahatma Gandhi National Rural Employment Guarantee Act passed ?

   A) 2010   B) 2005

   C) 1948   D) 2016

86. Select the river, which is not a tributary of Bharathapuzha.

   A) Mampuzha   B) Thuthapuzha

   C) Kalpathipuzha   D) Kannadipuzha

87. The Twelfth Five Year Plan in India has set a target of _____ average growth of GDP over the plan period.

   A) 7%   B) 10%   C) 8%   D) 12%

88. Which European power constructed the Pallipuram Fort ?

   A) The Dutch   B) The Portuguese

   C) The English   D) The French

89. Name the revolutionary, who died following a 64 day hunger strike in jail in protest of the ill treatment of political prisoners by the jail authorities.

A) Jatindra Nath Das

B) Barin Gosh

C) Bagha Jatin

D) Bhagwati Charan Vohra

90. Author of the play *Neel Darpan*

A) Rabindranath Tagore

B) Mahatma Gandhi

C) Madhusudhan Datta

D) Dinabandhu Mitra

91. Who was the founder of the protest movement named Prathyaksha Raksha Daiva Sabha ?

A) Thycaud Ayya   B) Chattampi Swamikkal

C) Pokayil Yohanan   D) Vagbhatananda

92. Name the author of the work *Baalakalesam*.

A) Kumaranasan

B) Pandit Karuppan

C) Ayyankali

D) Brahmananda Sivayogi

93. Antharjana Samajam, an organization for reforming Namboothiri women, was founded by

A) Parvathy Nenmenimangalam

B) Arya Pallam

C) Lalithambika Antharjanam

D) V. T. Bhattathiripad

94. Who was the social reformer of Kerala associated with the *Villuvandi Yathra* ?

A) Dr. Palpu

B) Mannathu Padmanabhan

C) T. K. Madhavan

D) Ayyankali

95. The year in which The Madras Marumakkathayam Act was passed
   A) 1926
   B) 1933
   C) 1957
   D) 1921

96. Name the President of BCCI who was sacked by the Supreme Court on 02-01-2017.
   A) Jagmohan Dalmiya
   B) Shashank Manohar
   C) Anurag Thakur
   D) N. Sreenivasan

97. Who was the Director of the film 'Clash' which was awarded with 'Suvarna Chakoram' at IFFK, 2016 ?
   A) Majid Barzegar
   B) Vidhu Vincent
   C) Carlos Gaviria
   D) Mohamed Diab

98. Who penned the book *The Sellout*, which own the Man Booker Prize Award of 2016 ?
   A) Paul Beatty
   B) Marlon James
   C) David Szalay
   D) Richard Flanagan

99. Name the South Korean President who was impeached in 2016.
   A) Dilma Rouseff
   B) Hwang Kyo-ahn
   C) Lee Myung-bak
   D) Park Geun-hye

100. What is the main intention of the scheme 'Lucky Grahag Yojana' launched by the Government of India ?
   A) To promote consumerism
   B) To eradicate poverty
   C) To promote the use of e-money
   D) To help the agricultural sector

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Space for Rough Work

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