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1. The velocity at which the flow changes from one form to other is known as :
(A) Average velocity (B) Super critical velocity
(C) Critical velocity (D) Maximum velocity
2. Sending part of the condensed liquid back to the column is called :
(A) Feed (B) Distillate (C) Raffinate (D) Reflux
3. A rotating cylinder of perforated sheet metal or wire screen is called :
(A) Grizzlies (B) Trommel
(C) Hammer screen (D) Cyclone separator
4. The element which receives the information from the measuring devices and decides what action should be taken is called :
(A) Controller (B) Sensor (C) Transducer (D) Transmitter
5. When an input variable of a system changes, there is a time interval during which no effect is observed on the output of the system is called :
(A) Dead time (B) Peak time (C) Interval time (D) Effective time
6. In cyclone separators which liquid is commonly used for solid suspension :
(A) Alcohol (B) Water (C) Kerosene (D) Benzene
7. The locus of the intersection of the upper operating line and lower operating line is called :
(A) Tie-line (B) c-line (C) d-line (D) q-line
8. Reynold's number can be represented by :
(A) μ/Du (B) Du/μ (C) Du/μ (D) $Du\mu/l$

9. The point of minimum cross section from an orifice flow is called :
(A) Capillary (B) Weirs (C) Vena contracta (D) Ventury
10. The efficiency of a single plate based on vapour-phase composition is called :
(A) Single plate efficiency (B) Overall plate efficiency
(C) Column efficiency (D) Murphree efficiency
11. Fine grinders are defined as those machines that can be made to give a product that will pass :
(A) 100 mesh screen (B) 200 mesh screen
(C) 300 mesh screen (D) 400 mesh screen
12. The most common digital converters used widely are :
(A) 8 bit or 12 bit (B) 10 bit or 14 bit (C) 15 bit or 20 bit (D) 20 bit or 25 bit
13. Which maintenance is naturally undertaken before the interruption of production and major breakdown ?
(A) Preventive maintenance (B) Predictive maintenance
(C) Annual maintenance (D) Breakdown maintenance
14. Rittinger's law states that the energy required for the crushing process is proportional to :
(A) The mass (B) The surface sheared
(C) The volume (D) The density
15. The most widely used settling apparatus is :
(A) Extractor (B) Distiller (C) Dorr agitator (D) Dorr thickner
16. The devices used to control the rate of flow of fluids in pipe lines are called :
(A) Pipe fittings (B) Nipples (C) Valves (D) Plugs
17. For diluting dangerous concentration of flammable vapours, which of the following is utilized :
(A) Proper ventilation (B) Proper lighting
(C) Proper covering (D) Proper strength

18. Which one of the following is a positive displacement pump ?
(A) Centrifugal pump (B) Volute pump
(C) Gear pump (D) Turbine pump
19. The pounds of water vapour carried by 1 pound of dry air under any given set of conditions are called :
(A) Saturated air (B) Saturated humidity
(C) Relative humidity (D) Humidity
20. The solid is vigorously agitated by the fluid passing through the bed is called :
(A) Filtration (B) Fluidization (C) Sedimentation (D) Activation
21. Thermal conductivity can be represented by the letter :
(A) T (B) C (C) K (D) H
22. A reverse gas absorption process is :
(A) Evaporation (B) Distillation (C) Extraction (D) Stripping
23. The process of removing air bound in pump casing is called :
(A) Cleaning (B) Priming (C) Pumping air (D) Evacuating
24. The mode of heat transfer that takes place in the form of electromagnetic waves is called :
(A) Radiation (B) Conduction (C) Convection (D) Electrolysis
25. Condensation occurs when a vapour contacts a surface which has a temperature below :
(A) The saturation temperature of vapour
(B) Latent heat of vapour
(C) Super heated vapour
(D) Critical temperature of vapour

26. The discharge pressure of a positive displacement single stage blower is :
(A) 1.1 to 2 atm. (B) 0.4 to 1 atm. (C) 2.1 to 3 atm. (D) 3.1 to 4 atm.
27. Expansion of HETP is :
(A) Heat Exchanger with Temperature and Pressure
(B) Heat Equivalent to Temperature and Pressure
(C) Heat Engine with Temperature and Pressure
(D) Height Equivalent to a Theoretical plate
28. In conduction, the driving force is :
(A) The temperature drop between the solid and the liquid
(B) The temperature drop between the solid and air
(C) The temperature drop across the solid
(D) The temperature drop between the solid and the solid at room temperature
29. Tubular heaters are also called :
(A) Tube heater (B) External heater (C) Heat exchanger (D) Reboiler
30. The amount of heat energy transferred by radiation per unit area of the surface in unit time is called :
(A) Emissive power of the surface (B) Radiative power of the surface
(C) Conductive power of the surface (D) Absorptive power of the surface
31. An equipment that takes suction at a pressure below atmospheric and discharges against atmospheric pressure is called :
(A) Piston pump (B) Vacuum pump (C) Pressure pump (D) Plunger pump
32. How many classes of crystals are there ?
(A) 2 (B) 3 (C) 4 (D) 6

33. A device used to remove condensate from steam heated equipment is :
 (A) Coils (B) Kettles (C) Traps (D) Condensers
34. The equation for overall heat transfer coefficient is :
 (A) $q = UA\Delta T$ (B) $q = UA/\Delta T$ (C) $q = UAH/\Delta T$ (D) $q = UA\Delta T/2$
35. Thermal conductivity of Aluminium at 100°C is :
 (A) 206 w/m°C (B) 300 w/m°C (C) 400 w/m°C (D) 500 w/m°C
36. Which of the following is used as a continuous filter ?
 (A) Plate and Frame (B) Leaf filter
 (C) Sieve filter (D) Rotary drum filter
37. Boiling point elevation can be found out by using :
 (A) Nusselt number (B) Prandtl number (C) Dühring's rule (D) Charles's law
38. For blending miscible liquids which operation can be applied effectively ?
 (A) Heating (B) Agitation (C) Cooling (D) Distilling
39. Basic law of conduction is called :
 (A) Fick's law (B) Fourier's law (C) Rittinger's law (D) Boyle's law
40. Most commonly used type filter aid is :
 (A) Silica (B) Sand (C) Soil (D) Kiesulguhr
41. Joule mechanical equivalent of energy is :
 (A) 4.814 J (B) 4.184 J (C) 8.414 J (D) 8.184 J
42. Which of the following quantities will be an exact differential ?
 (A) dw (B) dq (C) dG (D) dP

43. Electron affinity is nearly zero for :
(A) C (B) Na (C) F (D) N
44. Variation of enthalpy of a reaction with temperature is given by equation :
(A) Kirchoffs (B) Clausius (C) Arrhenius (D) Gibbs
45. Bond order of NO^+ is :
(A) 3.5 (B) 2.5 (C) 3 (D) 1.5
46. Unit of rate constant for zero order reaction is :
(A) s^{-1} (B) $\text{mol}^{-1} \text{l s}^{-1}$ (C) $\text{mol}^2 \text{l}^{-2} \text{s}^{-1}$ (D) $\text{mol l}^{-1} \text{s}^{-1}$
47. Entropy of vapourisation of a liquid is approximately :
(A) 18 J/mol K (B) 88 J/mol K (C) 68 J/mol K (D) 48 J/mol K
48. A liquid is said to wet the walls of the vessel when adhesion is _____ than cohesion.
(A) equal (B) lesser (C) greater (D) none of these
49. Common name for 1, 3-dihydroxy benzene is :
(A) Catechol (B) Quinol (C) Cresol (D) Resorcinol
50. Stereoisomers that are not mirror images are called :
(A) Enantiomers (B) Diastereomers (C) Tautomers (D) Optical isomers
51. Zirconyl Alizarin S reagent can be used for the detection of :
(A) Nitrates (B) Sulphates (C) Fluorides (D) Chlorides
52. Hybridisation in SnCl_2 is :
(A) sp (B) sp^3 (C) sp^2 (D) dsp^3

53. Reynold number is associated with _____ of liquids.
(A) Refractive index (B) Optical activity
(C) Viscosity (D) Surface tension
54. Optimum value of BOD is :
(A) 1-3 mg/l (B) 4-6 mg/l (C) 6-10 mg/l (D) None of these
55. Blue baby syndrome is caused by :
(A) Nitrates (B) Carbonates (C) Chlorides (D) Cyanide
56. Electronegativity of P is approximately :
(A) 1 (B) 3 (C) 3.5 (D) 2
57. Fundamental requirement for the maintenance of aquatic life is expressed as :
(A) DO (B) BOD (C) COD (D) None of these
58. For a zero order reaction, when initial concentration is doubled $t_{1/2}$ is :
(A) halved (B) doubled (C) unchanged (D) quadrupled
59. Eutrophication is caused by the presence of :
(A) Carbonates (B) Sulphates (C) Phosphates (D) Chlorides
60. Uppermost layer of the atmosphere is :
(A) Troposphere (B) Exosphere (C) Mesosphere (D) Stratosphere
61. Tolerable limit of noise level is :
(A) 18 db (B) 85 db (C) 50 db (D) 120 db
62. Ionic radii is minimum for :
(A) N^{3-} (B) F^- (C) Na^+ (D) Al^{3+}

63. Which of the following is expected to have a pyramidal structure ?
 (A) ClO_2^- (B) ClO_3^- (C) PO_4^{3-} (D) ClO_4^-
64. Minamata disease in Japan was a consequence of _____ Poisoning.
 (A) Mercury (B) Cyanide (C) Lead (D) Arsenic
65. Unit of Arrhenius exponential factor A is :
 (A) J/Kmol (B) KJ/mol (C) $\text{mol}/\text{dm}^3\text{s}$ (D) $\text{dm}^3/\text{mol s}$
66. Shape of H_3O^+ is :
 (A) Tetrahedral (B) Square planar (C) Pyramidal (D) T shape
67. Benzene hexachloride is commonly known as :
 (A) Parathion (B) Lindane (C) DDT (D) Malathion
68. Which of the following ions yield colourless solutions ?
 (A) Fe^{3+} (B) Mn^{2+} (C) Ti^{3+} (D) Cu^+
69. Photochemical smog is caused by oxides of :
 (A) Carbon (B) Phosphorus (C) Sulphur (D) Nitrogen
70. Enthalpy of hydration is negative for the dissolution of :
 (A) CuSO_4 (B) KCl (C) NaNO_3 (D) $\text{CuSO}_4 \cdot 5 \text{H}_2\text{O}$
71. Benzoic acid can be purified by :
 (A) Sublimation (B) Crystallisation (C) Solvent extraction (D) All of these
72. Phosphorus is estimated as its :
 (A) H_3PO_4 (B) $[(\text{NH}_4)_3\text{PO}_4 \cdot 12\text{MoO}_3]$
 (C) $(\text{NH}_4)_3\text{PO}_4$ (D) None of these

73. An example for an electrophile is :
(A) Hydride ion (B) Water (C) Ether (D) Nitrene
74. Example for a compound not showing enantiomerism :
(A) Tartaric acid (B) 1, 3-dimethyl allene
(C) Lactic acid (D) None of these
75. The order of basicity of amines $\text{NH}_3 < \text{RNH}_2 < \text{R}_2\text{NH} < \text{R}_3\text{N}$ may be attributed to _____ effect.
(A) inductive (B) mesomeric
(C) hyperconjugative (D) electromeric
76. Intermediate in pinacol-pinacolone rearrangement is :
(A) Carbocation (B) Carbanion (C) Carbene (D) None of these
77. Stability of half filled orbital configuration is a consequence of :
(A) Hund's rule (B) Aufbau principle
(C) Pauli's principle (D) None of these
78. Chloroplatinic acid is used for the estimation of :
(A) Acids (B) Chloride (C) Bases (D) Nitrogen
79. Steam distillation may be useful for the purification of :
(A) Benzene (B) Benzoic acid (C) Aniline (D) Ethyl acetate
80. Energy required for placing two electrons in an orbital is termed _____ energy.
(A) exchange (B) pairing (C) promotional (D) none of these
81. On which day the Ozone Day is observed every year ?
(A) May 31 (B) August 21 (C) September 16 (D) November 5