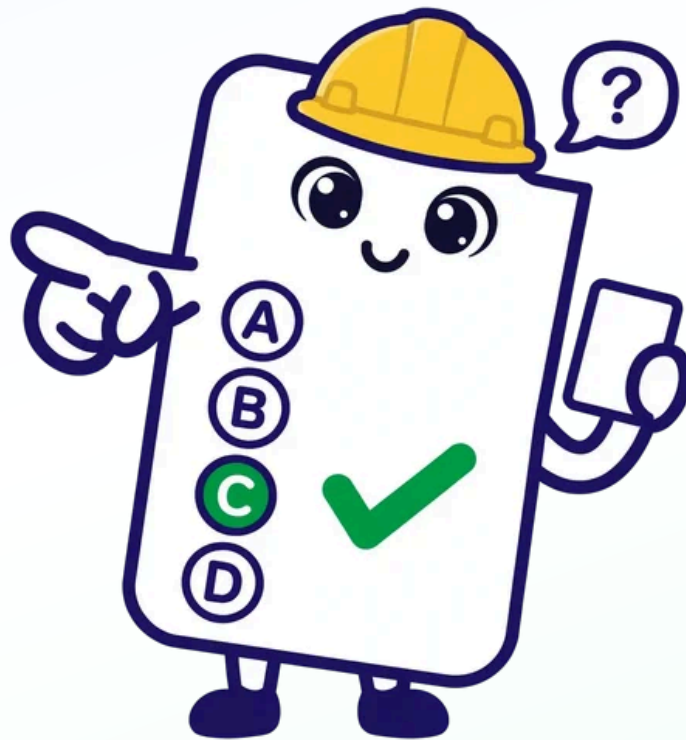




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- Computer Science and IT: 1 MCQs per paper



MODEL PAPER 1 OF 1

Assistant Engineer Chemical Test

100 MCQs · 120 minutes · answer key at the back



Chemical Engineering

80 MCQs

1. Theoretical head developed by a centrifugal pump does not depend upon the _____ the impeller?

- (A) Radius of
- (B) Speed of
- (C) Fluid velocity leaving
- (D) None of these

2. Cast iron compared to steel is better in _____?

- (A) Ductility
- (B) Fluidity & castability
- (C) Strength
- (D) Malleability

3. Molecular weight of polymers are in the range of _____?

- (A) 10 to 103
- (B) 102-107
- (C) 107-109
- (D) 109-1011

4. A constant volume gas thermometer employing _____ is used to measure sub-zero (i.e., < 0°C) temperature?

- (A) Helium
- (B) Hydrogen
- (C) Nitrogen
- (D) None of these

5. Weep holes provided in the plates of a distillation column _____?

- (A) Facilitate draining out liquid from a tray when the unit is not in operation
- (B) Are normally located near the overflow weir so that any delivery of liquid during operation
- (C) follows approximately the same path as the overflow fluid
- (D) Must be large enough (usually 1/4" to 5/8" dia) to prevent plugging but should not deliver
- (E) excessive amount of fluid during operation
- (F) All A., B. and C.

6. Which is a catalyst promoter used in catalytic ammonia synthesis reaction?

- (A) Al₂O₃
- (B) Cr₂O₃
- (C) K₂O
- (D) MnO

7. In an ideal solution, the activity of a component equals its _____?

- (A) Mole fraction
- (B) Fugacity at the same temperature and pressure
- (C) Partial pressure
- (D) None of these

8. Which of the following is directly concerned with the heat transfer?

- (A) Strouhal number
- (B) Sherwood number
- (C) Euler number
- (D) Grashoff number

9. The pressure intensity is the same in all directions at a point in a fluid _____?

- (A) Only when the fluid is frictionless
- (B) Only when the fluid is at rest having zero velocity
- (C) When there is no motion of one fluid layer relative to an adjacent layer
- (D) Regardless of the motion of one fluid layer relative to an adjacent layer

10. Galvanic corrosion cannot be prevented by _____?

- (A) Cathodic protection
- (B) Anodic protection
- (C) Usage of largest possible anodic area
- (D) Any one of these

11. If 4 gm of a radioisotope has a half life period of 10 days, the half life of 2 gm of the same isotope will be _____ days?

- (A) 5
- (B) 10
- (C) 20
- (D) 30

12. A photo electric device in which the resistance of the metal is directly proportional to the light striking on it, is known as photo-conductive cell. Photoelectric transducers are used for the measurement of those parameters, which can be used to produce variation in _____?

- (A) Light intensity
- (B) Current
- (C) Flux density
- (D) Voltage

13. The overall mass transfer co-efficient for the absorption of SO₂ in air with dilute NaOH solution can be increased substantially by _____?

- (A) Increasing the gas film co-efficient
- (B) Increasing the liquid film co-efficient
- (C) Increasing the total pressure
- (D) Decreasing the total pressure

14. The rate of forward reaction, at chemical equilibrium is _____ the rate of backward reaction?

- (A) More than
- (B) Less than
- (C) Equal to
- (D) Either B. or C.

15. Air standard Otto cycle is more efficient than the diesel cycle for the same _____?

- (A) Heat addition & compression ratio
- (B) Heat addition & pressure
- (C) Compression ratio & pressure
- (D) Cylinder dimension & rpm

16. In chemical dehumidification of air _____?

- (A) Both specific humidity & dry bulb temperature increases
- (B) Both specific humidity & dry bulb temperature decreases
- (C) Specific humidity decreases & dry bulb temperature increases
- (D) Specific humidity increases & dry bulb temperature decreases

17. Actual lift of a pump is always less than the theoretical lift and is limited by the _____?

- (A) Specific gravity & temperature of the liquid
- (B) Leakage & pressure decreasing at higher elevations
- (C) Frictional resistance through pipes, fittings & passages
- (D) All A., B. and C.

18. Lead is _____?

- (A) Not resistant to corrosion
- (B) Used as a cathodic material
- (C) Not used as pigment (in its compound forms) for paints
- (D) Used as a shock absorber (in mattress form) between the foundation and steel framework of
- (E) skyscraper buildings

19. Refractoriness under loads (RUL) is quite close to the fusion temperature (PCE) for _____ bricks?

- (A) Fireclay
- (B) Silica
- (C) Dolomite
- (D) Very low alumina

20. On-off control which is a special case of proportional control, has a band width of about _____ percent?

- (A) 100
- (B) 75
- (C) 25
- (D) 0

21. Cation exchanger is regenerated usually with _____?

- (A) NaOH
- (B) H₂SO₄
- (C) Hydrazine
- (D) Alum solution

22. Use of catalyst is a must in the ammonia manufacture, because the reaction is reversible as well as the heat of dissociation of N₂ & H₂ is high. The presence of promoter along with the catalyst helps in _____ of the catalyst?

- (A) Stabilisation
- (B) Increasing the effectiveness
- (C) Improving the strength & heat resistance
- (D) All A, B & C

23. Degree of freedom of the system ice-water-vapour will be _____?

- (A) 0
- (B) 1
- (C) 2
- (D) 3

24. Which is not a hearth furnace?

- (A) Glass tank furnace
- (B) Open hearth furnace
- (C) Cupola
- (D) Reheating furnace

25. Buckingham- π theorem states that in any physical problem including 'n' quantities having 'm' dimensions, the quantities can be arranged into _____ independent dimensionless parameters?

- (A) m
- (B) n
- (C) n-m
- (D) n/m

26. Vycor, a widely used material for making 'thermal wells' in temperature measurement, is a _____?

- (A) Cermet
- (B) Glass
- (C) Thermosetting plastic
- (D) Metallic alloy

27. Coal tar (produced by high temperature carbonisation) is the main source of _____?

- (A) Aromatic compounds
- (B) Aliphatic compounds
- (C) Paraffins
- (D) Olefins

28. A pyranometer is an instrument used for measuring the _____?

- (A) Beam radiation
- (B) Global radiation
- (C) Bright sunshine period
- (D) None of these

29. During sensible cooling process _____?

- (A) Relative humidity decreases
- (B) Relative humidity increases
- (C) Wet bulb temperature decreases
- (D) Both B. and C.

30. Space time equals the mean residence time _____?

- (A) When the density of the reaction mixture is constant
- (B) For large diameter tubular reactor
- (C) For narrow diameter tubular reactor
- (D) For CSTR

31. Gibbs free energy (F) is defined as _____?

- (A) $F = E - TS$
- (B) $F = H - TS$
- (C) $F = H + TS$
- (D) $F = E + TS$

32. The ratio of velocity head to tube side return loss in case of a multipass shell and tube heat exchanger is _____?

- (A) 2
- (B) 1/2
- (C) 4
- (D) 1/4

33. The operating speed of a ball mill should be _____ the critical speed?

- (A) Less than
- (B) Much more than
- (C) At least equal to
- (D) Slightly more than

34. Diameter of the rivet to be provided on a 20 mm. thick boiler plate will be _____ mm?

- (A) 10
- (B) 20
- (C) 30
- (D) 40

35. 1 gm mole of an alcohol whose molecular weight is 74 contains 48 gms of carbon, 10 gms of hydrogen and 16 gms of oxygen. Its molecular formula is _____?

- (A) C_4H_9OH
- (B) $C_3H_{21}OH$
- (C) $(C_2H_4)_2H_2.OH$
- (D) $C_2H_{33}OH$

36. Temperature measuring instruments are standardised mostly with _____ points of pure substances?

- (A) Melting
- (B) Boiling
- (C) Both A. & B.
- (D) Neither A. nor B.

37. For identical operating conditions, the pressure drop over _____ tray is the highest out of the following?

- (A) Sieve
- (B) Valve
- (C) Counter flow
- (D) Bubble cap

38. For a _____ order reaction, the units of rate constant and rate of reaction are the same?

- (A) Zero
- (B) First
- (C) Second
- (D) Fractional

39. The number of degree of freedom for an Azeotropic mixture of ethanol and water in vapour liquid equilibrium, is _____?

- (A) 3
- (B) 1
- (C) 2
- (D) 0

40. In regenerative air preheater (as practised in heating of coke ovens), the heat is transferred _____?

- (A) Through a metallic wall
- (B) By direct contact of hot flue gas with air
- (C) By heating an intermediate material (like chequor bricks) and then heating the air from this
- (D) hot material
- (E) None of these

41. At what value of crank angle (roughly), no flow of water from or into the air vessel takes place in case of a double acting reciprocating pump?

- (A) 40° and 140°
- (B) 45° and 60°
- (C) 90° and 80°
- (D) 20° and 120°

42. Steel & cast iron pipes are produced by _____ casting?

- (A) Slush
- (B) Die
- (C) Investment
- (D) True centrifugal

43. Perspex is nothing but _____?

- (A) Acrylic sheet
- (B) An elastomer
- (C) An alloy of lead and tin
- (D) Aluminium foil clad with Bakelite

44. Pirani gauge is used for the measurement of _____?

- (A) Very high pressure
- (B) High vacuum
- (C) Liquid level under pressure
- (D) Liquid level at atmospheric pressure

45. Crystal size in a continuous crystalliser depends upon the _____?

- (A) Rate of heat transfer
- (B) Degree of turbulence
- (C) Degree of super-saturation
- (D) All A., B. and C

46. A chemical reaction is of zero order, when the reaction rate is (where, C_A = concentration of reactant)?

- (A) $\propto C_A$
- (B) $\propto 1/C_A$
- (C) Independent of temperature
- (D) None of these

47. On application of pressure to the equilibrium system, $\text{ice} \rightleftharpoons \text{water}$; which of the following phenomenon will occur ?

- (A) Water will evaporate
- (B) Equilibrium will not be attained
- (C) More ice will be formed
- (D) More water will be formed

48. Thermal conductivity of a gas at low density, _____ with increase in temperature ?

- (A) Decreases
- (B) Increases
- (C) Remains unchanged
- (D) May increase or decrease; depends on the gas

49. Viscosity of atmospheric air may be about _____ centipoise?

- (A) 0.015
- (B) 1.5
- (C) 15
- (D) 150

50. The damage/deterioration of metals by the _____ action of fluids is called 'erosion'?

- (A) Abrasive
- (B) Corrosive
- (C) Both A. & B.
- (D) Neither A. nor B.

51. Rayon is a _____ fibre?

- (A) Cellulosic
- (B) Polyamide
- (C) Polyester
- (D) Natural

52. Which of the following is not a composition measuring instrument ?

- (A) Thermal conductivity cell
- (B) Mass spectrometer
- (C) Polarograph
- (D) Hot wire anemometer

53. Corresponding to Prandtl number in heat transfer, the dimensionless group in mass transfer is the _____ number?

- (A) Schmidt
- (B) Sherwood
- (C) Peclet
- (D) Stanton

54. BET apparatus is used to determine the _____ ?

- (A) Specific surface of a porous catalyst
- (B) Pore size distribution
- (C) Pore diameter
- (D) Porosity of the catalyst bed

55. Throttling process is a/an _____ process?

- (A) Reversible and isothermal
- (B) Irreversible and constant enthalpy
- (C) Reversible and constant entropy
- (D) Reversible and constant enthalpy

56. Reynold's analogy states that _____?

- (A) $N_{St} \propto f$
- (B) $N_{St} \propto N_{Re}$
- (C) $N_{Nu} \propto f$
- (D) $N_{Re} \propto f$

57. In case of a _____ the energy of flow is considerably decreased downstream of the machine?

- (A) Blower
- (B) Turbine
- (C) Centrifugal pump
- (D) Centrifugal fan

58. Following the six-tenth factor rule, if a log-log plot of capacity of the equipment vs. cost of the equipment is made, then a straight line is obtained, whose slope is equal to _____?

- (A) 0.1
- (B) 0.6
- (C) 0.2
- (D) 0.8

59. L.D. (Linz-Donawitz) converter is used in the production of _____?

- (A) Copper
- (B) Steel
- (C) Zinc
- (D) Aluminium

60. Thermistor, which has high temperature co-efficient of resistivity, is used as the sensing element in resistance thermometer. It is a/an ?

- (A) Insulator
- (B) Conductor
- (C) Solid semi-conductor
- (D) Liquid semi-conductor

61. To get high tray efficiency _____?

- (A) Interfacial surface between liquid and gas phase should be large
- (B) Time of contact between the two phases should be less
- (C) Gas velocity should be very low
- (D) Liquid entrainment should be severe

62. For the non-catalytic reaction of particles with surrounding fluid, the time needed to achieve the same fractional conversion for particles of different but unchanging sizes is proportional to the square of particle diameter, when the _____ is the controlling resistance?

- (A) Film diffusion
- (B) Diffusion through ash layer
- (C) Chemical reaction
- (D) Either A, B, or C.

63. The difference between isothermal compressibility and adiabatic compressibility for an ideal gas is _____?

- (A) 0
- (B) +ve
- (C) -ve
- (D) ∞

64. Wavelength corresponding to the maximum energy is inversely proportional to the absolute temperature. This is _____ law?

- (A) Stefan's
- (B) Dalton's
- (C) Wien's
- (D) Kirchoff's

65. Shear stress in a fluid flowing in a round pipe _____?

- (A) Varies parabolically across the cross-section
- (B) Remains constant over the cross-section
- (C) Is zero at the centre and varies linearly with the radius
- (D) Is zero at the wall and increases linearly to the centre

66. Which one is not an induced draught furnace ?

- (A) Blast furnace stove
- (B) Sintering furnace
- (C) High pressure boiler
- (D) None of these

67. Petroleum is believed to have originated from _____ sources?

- (A) Vegetable
- (B) Animal
- (C) Both A. and B.
- (D) Neither A. nor B.

68. Pyrometry refers to the measurement of temperature _____?

- (A) With the mercurial thermometer upto 350°C
- (B) Directly
- (C) Which is of higher magnitude
- (D) All A., B. & C.

69. The expression, $\ln(F/W) = \int xF xW [dx/y^* - x]$ is _____?

- (A) Differential distillation equation
- (B) For NtoG in absorption for dilute mixture
- (C) Slope of q-line in McCabe-Thiele method
- (D) For relative volatility

70. In a reaction, the threshold energy is equal to (where, A = activation energy N = normal energy of reactants) ?

- (A) A
- (B) N
- (C) A + N
- (D) A - N

71. What is the value of $\ln \gamma$ (where γ = activity co-efficient) for ideal gases ?

- (A) Zero
- (B) Unity
- (C) Infinity
- (D) Negative

72. One kilogram of water at 0°C is changed to superheated steam of one atm pressure and 300°C . The major heat consumption in the process will be to _____?

- (A) Heat the water from 0°C to 100°C
- (B) Evaporate the water
- (C) To superheat the steam
- (D) Data insufficient, can't be predicted

73. For a given fluid, as the pipe diameter increases, the pumping cost _____?

- (A) Decreases
- (B) Increases
- (C) Remain unaffected
- (D) May increase or decrease depending upon whether the fluid is Newtonian or non-Newtonian

74. The highest melting pure oxide (m.p. $> 3000^\circ\text{C}$) is _____?

- (A) Thoria
- (B) Alumina
- (C) Beryllia
- (D) Zirconia

75. Width of the coke oven towards coke side is slightly more than that on pusher side to _____?

- (A) Facilitate easy discharging of coke as it swells during carbonisation
- (B) Facilitate uniform heating of the oven
- (C) Increase the output of the coke
- (D) None of these

76. Bode stability method uses _____ loop transfer function?

- (A) Open
- (B) Closed
- (C) Either A. or B.
- (D) Neither A. nor B.

77. In osmosis through a semi-permeable membrane, diffusion of the _____?

- (A) Solvent is from low concentration to high concentration region
- (B) Solvent is from high concentration to low concentration region
- (C) Solute takes place
- (D) None of these

78. Shift conversion reaction _____?

- (A) Converts N_2 and H_2 into NH_3
- (B) Converts CO to CO_2 with steam
- (C) Is non-catalytic
- (D) Is highly exothermic

79. If heat contents of CH_4 , C_2H_4 and C_3H_8 are -17.9, 12.5 and -24.8 kcal/mole respectively, than ΔH for the reaction $\text{CH}_4(\text{g}) + \text{C}_2\text{H}_4(\text{g}) \rightleftharpoons \text{C}_3\text{H}_8(\text{g})$ will be _____ Kcal?

- (A) -19.4 (B) -30.2
(C) 55.2 (D) -55.2

80. In a shell and tube heat exchanger, the overall heat transfer co-efficient is proportional to the tube side (volumetric flow rate)^{0.8}. This is valid, only when the ratio of the tube side film resistance to the total resistance is almost equal to _____?

- (A) ∞ (B) 1
(C) 20.8 (D) 2



English

5 MCQs

81. He asked me _.

- (A) How are you? (B) How was I?
(C) How you are? (D) How I was.

82. In each of the following question, four alternative meanings of a word are given. You have to select the NEAREST CORRECT MEANING of the given word and fill the appropriate Circle on the MCQ Response Form. NEOLOGISM

- (A) A new word (B) Pleasant remark
(C) Brief summary (D) Archaic expression

83. Which of the following is grammatically correct?

- (A) In the end, they found there money over they're by the ATM.
(B) In the end, they found they're money over their by the ATM.
(C) In the end, they found their money over there by the ATM.
(D) In the end, they found there money over their by the ATM.

84. From the moment he look over the public office, his actions have:

- (A) Been loaded with significance and filled with worth
(B) Been significant with worthwhile
(C) To be loaded with significance and filled with worth
(D) Been actions of significance and worth

85. In each of the following question, four alternative sentences are given. Choose the correct one.

- (A) This is different to what had been expected.
(B) This is different what had been expected.
(C) This is different from what had been expected.
(D) This is different to what would be expected.

**General Knowledge**

5 MCQs

86. Yerevan, one of the world's continuously inhabited cities, is the Capital of what Country?

- ☐ A Armenia
- ☐ B Vatican
- ☐ C Spain
- ☐ D Cuba

87. Silk is produced by _____?

- ☐ A Egg of silkworm
- ☐ B Pupa of silkworm
- ☐ C Larva of silkworm
- ☐ D Insect itself

88. SACEUR (Supreme Allied Commander Europe) in NATO is nominated by?

- ☐ A National Atlantic Council
- ☐ B President of the United States, with Senate advice and consent
- ☐ C Secretary General NATO during summit
- ☐ D Country hosting annual summit

89. MNNA stands for?

- ☐ A Major Non NATO Ally
- ☐ B Main Non NATO Ally
- ☐ C Modern Non NATO Ally
- ☐ D Minor Non NATO Ally

90. Ground of which sport has the shape of Diamond?

- ☐ A Baseball
- ☐ B cricket
- ☐ C wrestling
- ☐ D basketball

**Pakistan Studies**

4 MCQs

91. What is the total area of Sindh Province?

- ☐ A 74,521 Sq Km
- ☐ B 140,914 Sq Km
- ☐ C 347,190 Sq Km
- ☐ D 205,344 Sq Km

92. Dyarchy system firstly used in India under?

- ☐ A Interim Government
- ☐ B Lucknow pact
- ☐ C Montagu Chelmsford reforms
- ☐ D Viceroy Lord Wavell

93. When did jinnah join congress?

- ☐ A 1906
- ☐ B 1905
- ☐ C 1904
- ☐ D 1903

94. Famous dish "Sajji" originated from _____?

- ☐ A Sindh
- ☐ B KPK
- ☐ C Balochistan
- ☐ D Punjab

**Pakistan Current Affairs**

3 MCQs

95. In which year SUPARCO has plans on sending its first astronaut into space?

- ☐ A 2020
- ☐ B 2022
- ☐ C 2023
- ☐ D 2024Science

96. Kabaddi World Cup 2020 Final was played in which City?

- ☐ A Faisalabad
- ☐ B Lahore
- ☐ C Gujrat
- ☐ D Karachi

97. According to state bank of Pakistan , How much million dollars received by Pakistan as IMF second tranche?

- ☐ A \$705.6 million
- ☐ B \$825.5 million
- ☐ C \$765.5 million
- ☐ D \$555.5 million

**Islamic Studies**

2 MCQs

98. Hazrat Fatima (R.A) went to which Khalifa for Bagh e Fadak?

- ☐ A Hazrat Abu Bakar Siddique
- ☐ B Hazrat Umar (R.A)
- ☐ C Hazrat Usman (R.A)
- ☐ D Hazrat Muwaiya (R.A)

99. Who are the "Sahibain"?

- ☐ A Abu Hanifah and Abu Yusuf
- ☐ B Abu Hanifah and Imam Shaibani
- ☐ C Abu Yusuf and Imam Shaibani
- ☐ D Abu Hanifah and Imam Shafi

**Computer Science and IT**

1 MCQs

100. In which year were all networks created for military use abandoned and replaced by the National Science Foundation

- ☐ A 1979
- ☐ B 1989
- ☐ C 1969
- ☐ D 1959

Answer key

Tap any answer to open its full explanation on TestUstad.

Model Paper 1

1	D	2	B	3	B	4	A	5	F	6	C	7	A	8	D	9	C	10	B
11	B	12	A	13	A	14	C	15	A	16	C	17	D	18	D	19	B	20	D
21	B	22	D	23	A	24	C	25	C	26	B	27	A	28	B	29	D	30	A
31	B	32	D	33	A	34	D	35	A	36	C	37	D	38	A	39	B	40	C
41	A	42	D	43	A	44	B	45	D	46	D	47	D	48	B	49	A	50	A
51	A	52	D	53	A	54	A	55	B	56	A	57	B	58	B	59	B	60	C
61	A	62	B	63	B	64	C	65	C	66	A	67	C	68	C	69	A	70	C
71	A	72	B	73	A	74	A	75	A	76	A	77	A	78	B	79	A	80	B
81	D	82	A	83	C	84	B	85	C	86	A	87	C	88	B	89	A	90	A
91	B	92	C	93	A	94	C	95	B	96	B	97	A	98	A	99	C	100	B



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