1

If “A” denotes “added to”, “B” denotes “divided by”, “C” denotes “multiplied by” and “D” denotes “subtracted from”, then 87 B 3 C 4 A 4 D 50 = ?

(A)

65

(B)

75

(C)

70

(D)

80

Answer:(C)

2

In a certain code language “feel free to fly” = “4l 4e 2o 3y”. “Why the statement” = “3y 3e 9t” then “Media” is coded as _____ .

(A)

5m

(B)

5e

(C)

5a

(D)

4a

Answer:(C)

3

Mohini is taller than Nita but not shorter than Sarita. Sarita and Mahek are of same height. Mohini is shorter that Hemali. Among them, who is the second tallest?

(A)

Mohini

(B)

Nita

(C)

Hemali

(D)

None of all mentioned

Answer:(D)

4

In a certain code language, “CAB” is written as “6” and “LEG” is written as “6”. How is “MAP” written in that code language?

(A)

6

(B)

4

(C)

3

(D)

8

Answer:(C)

5

If 11 # 2 @ 6 = 78 and 15 # 4 @ 8 = 152, then 17 # 6 @ 7 = ?

(A)

161

(B)

143

(C)

221

(D)

157

Answer:(A)

6

"A series is given with one term missing. Choose the correct alternative from the given ones that will complete the series. MN, PQ, TU, YZ, ?"

(A)

YZ

(B)

AB

(C)

EF

(D)

EJ

Answer:(C)

7

In the following question, select the odd word pair from the given alternatives.

(A)

Zinc – Metal

(B)

Aluminum – Metal

(C)

Crocodile – Water

(D)

Gold – Metal

Answer:(C)

8

"Select the related number from the given alternatives.

97 : 63 : : 67 : ?"

(A)

38

(B)

56

(C)

42

(D)

45

Answer:(C)

9

Jayesh is facing towards the east. He turns 270 degrees clockwise and then takes a right turn. Finally, he turns 90 degrees anticlockwise. Which direction is he facing now?

(A)

West

(B)

South

(C)

North

(D)

East

Answer:(C)

10

"Which set of letters when sequentially placed at the gaps in the given letter series shall complete it?

p_rt_rr_p_rt"

(A)

rptr

(B)

rrtp

(C)

ptrr

(D)

tprt

Answer:(A)

11

In the following question, select the odd number pair from the given alternatives.

(A)

17 – 12

(B)

29 – 14

(C)

21 – 16

(D)

31 – 26

Answer:(B)

12

"S, R, N, L, M, T, O, & P are eight persons sitting in a circle facing the center. Their different occupations are-reporter, doctor, cricketer, teacher, accountant, shopkeeper, painter & Supervisor, but not necessarily in the same order as given.

M is third to the left of O. Doctor is at the immediate right of M & M is not a reporter. R is fourth to the right of P. None of R & P are the nearest neighbours of M.T is a teacher & sitting third to the right of doctor. A shopkeeper is sitting second to the left of the teacher. Painter is sitting second to the left of M. Cricketer S is sitting exactly between T & P. Accountant is sitting second to the right of a cricketer. N is third to the left of T.

Who form the following is a reporter?"

(A)

O

(B)

L

(C)

N

(D)

R

Answer:(A)

13

"S, R, N, L, M, T, O, & P are eight persons sitting in a circle facing the center. Their different occupations are-reporter, doctor, cricketer, teacher, accountant, shopkeeper, painter & Supervisor, but not necessarily in the same order as given.

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What is the position of S regarding R?"

(A)

Third to the right

(B)

Second to the right

(C)

Third to the left

(D)

Second to the left

Answer:(A)

14

"S, R, N, L, M, T, O, & P are eight persons sitting in a circle facing the center. Their different occupations are-reporter, doctor, cricketer, teacher, accountant, shopkeeper, painter & Supervisor, but not necessarily in the same order as given.

M is third to the left of O. Doctor is at the immediate right of M & M is not a reporter. R is fourth to the right of P. None of R & P are the nearest neighbours of M.T is a teacher & sitting third to the right of doctor. A shopkeeper is sitting second to the left of the teacher. Painter is sitting second to the left of M. Cricketer S is sitting exactly between T & P. Accountant is sitting second to the right of a cricketer. N is third to the left of T.

If we count in the anti-clockwise direction starting from N; then how many persons are sitting between P & N?"

(A)

One

(B)

Two

(C)

Three

(D)

Four

Answer:(D)

15

"S, R, N, L, M, T, O, & P are eight persons sitting in a circle facing the center. Their different occupations are-reporter, doctor, cricketer, teacher, accountant, shopkeeper, painter & Supervisor, but not necessarily in the same order as given.

M is third to the left of O. Doctor is at the immediate right of M & M is not a reporter. R is fourth to the right of P. None of R & P are the nearest neighbours of M.T is a teacher & sitting third to the right of doctor. A shopkeeper is sitting second to the left of the teacher. Painter is sitting second to the left of M. Cricketer S is sitting exactly between T & P. Accountant is sitting second to the right of a cricketer. N is third to the left of T.

As per the position mentioned above; four of the following pairs are alike & so they form their group. Which one does not belong to this group?"

(A)

Teacher-Painter

(B)

Supervisor – Shopkeeper

(C)

Cricketer – Reporter

(D)

Shopkeeper – Doctor

Answer:(D)

16

Where is Salar Jung Museum located?

(A)

Patna

(B)

New Delhi

(C)

Hyderabad

(D)

Lucknow

Answer:(C)

17

Who is the UN Secretary-General(since 1st January 2017)?

(A)

Antonio Guterres

(B)

Marathon Mania

(C)

Trump

(D)

Bush

Answer:(A)

18

What is the full form of ESA?

(A)

European Space Agency

(B)

European seculars agency

(C)

East Space Agency

(D)

Earth Space Agency

Answer:(A)

19

How many public institution banks are there in India?

(A)

27

(B)

29

(C)

25

(D)

none

Answer:(A)

20

Does the bank provide?

(A)

Central Services

(B)

Direct Services

(C)

Financial Services

(D)

none

Answer:(C)

21

When was the Reserve Bank of India established?

(A)

1-Apr-1935

(B)

25-Mar-1947

(C)

17-Dec-1937

(D)

none

Answer:(A)

22

Where is the headquarters of the Reserve Bank of India?

(A)

Nagpur

(B)

Delhi

(C)

Mumbai

(D)

Bhopal

Answer:(C)

23

When did the Reserve Bank of India nationalize?

(A)

2-Sep-1950

(B)

19-Mar-1947

(C)

1-Jan-1949

(D)

26-Jan-1950

Answer:(C)

24

What is the bank rate of the Reserve Bank of India?

(A)

6%

(B)

7.75%

(C)

7%

(D)

5%

Answer:(B)

25

When was the Bharatiya Mahila Bank established?

(A)

19-Nov-2013

(B)

15-Aug-2014

(C)

26-Jan-2013

(D)

none

Answer:(A)

26

After how many years Palestine is ready to hold its first national election in the year 2021?

(A)

10 years

(B)

25 years

(C)

20 years

(D)

14 years

Answer:(D)

27

Recently which country successfully test-fired the supersonic cruise missile BrahMos?

(A)

India

(B)

Nepal

(C)

Pakistan

(D)

Bangladesh

Answer:(A)

28

When was the “National Vayoshri Yojana” launched?

(A)

1-Apr-2016

(B)

1-Jul-2016

(C)

1-Jul-2017

(D)

1-Apr-2017

Answer:(D)

29

Where has Nirav Modi, who cheated Punjab National Bank, been arrested?

(A)

London

(B)

Hungary

(C)

Spain

(D)

Portugal

Answer:(A)

30

The United Nations Security Council has imposed new comprehensive international sanctions on which country in March 2016?

(A)

Pakistan

(B)

China

(C)

North Korea

(D)

South Korea

Answer:(C)

31

The International Day for the Eradication of Poverty is observed on which of the following days?

(A)

10-Jan

(B)

12-Mar

(C)

15-Apr

(D)

17-Oct

Answer:(D)

32

Dogri' language is spoken in which Indian territory?

(A)

Puducherry

(B)

Jammu and Kashmir Province

(C)

Nagaland

(D)

Andaman and Nicobar Islands

Answer:(B)

33

Which of the following organizations is a publication of 'World Development Report'?

(A)

International Monetary Fund

(B)

World Trade Organization

(C)

World Bank

(D)

UNCTAD

Answer:(C)

34

Where is the headquarters of the World Bank?

(A)

Washington DC

(B)

Geneva

(C)

The Hague

(D)

Paris

Answer:(A)

35

Recently, where was the 15 thousand square feet Rangoli made?

(A)

Gujarat

(B)

Mumbai

(C)

Bangalore

(D)

Trivandrum

Answer:(B)

36

Study of chemical kinetics is the easiest in the case of _____ reactions.

(A)

Irreversible

(B)

Reversible

(C)

Surface

(D)

Side

Answer:(A)

37

The catalyst in a first order chemical reaction changes the

(A)

Equilibrium constant

(B)

Activation energy

(C)

Heat of formation of the product

(D)

Heat of reaction

Answer:(B)

38

Limiting reactant in a chemical reaction decides the

(A)

Rate constant

(B)

Conversion

(C)

Reaction speed

(D)

Equilibrium constant

Answer:(B)

39

In an exothermic chemical reaction, the reactants compared to the products have

(A)

Higher temperature

(B)

More energy

(C)

Less energy

(D)

Same energy

Answer:(B)

40

An isothermal aqueous phase reversible reaction, P ⇋ R, is to be carried out in a mixed flow reactor. The reaction rate in k.mole/m^3.h is given by, r = 0.5CP - 0.125CR. A stream containing only P enters the

(A)

0.8

(B)

1.33

(C)

1.6

(D)

2.67

Answer:(C)

41

According to the 'law of mass action', the rate of reaction is directly proportional to the

(A)

Equilibrium constant

(B)

Volume of the reaction vessel

(C)

Nature of the reactants

(D)

Molar concentration of the reactants

Answer:(D)

42

For an ideal mixed flow reactor (CSTR), the exit age distribution E(t) is given by

(A)

A dirac delta function

(B)

A step function

(C)

A ramp function

(D)

None of all mentioned

Answer:(D)

43

Mean residence time is equal to the space time, when

(A)

The feed rate is measured at temperature and pressure in the reactor

(B)

The temperature, pressure and the density of reaction mixture remains constant throughout the reactor

(C)

There is no change in number of moles in gaseous reaction

(D)

All of the mentioned

Answer:(D)

44

A space time of 3 hours for a flow reactor means that

(A)

The time required to process one reactor volume of feed (measured at specified conditions) is 3 hours

(B)

Three reactor volumes of feed can be processed every hour

(C)

It takes three hours to dump the entire volume of the reactor with feed

(D)

Conversion is cent per cent after three hours

Answer:(A)

45

Which of the following will give maximum gas conversion?

(A)

Fixed bed reactor

(B)

Fluidized bed reactor

(C)

Semi-fluidized bed reactor

(D)

Plug-flow catalytic reactor

Answer:(C)

46

For the same residence time, which one will give the maximum conversion?

(A)

Single stirred tank (v = 5 litres)

(B)

Two stirred tank (each of 2.5 litres) in series

(C)

Stirred tank followed by tubular flow reactor (each of 2.5 litres)

(D)

Single tubular flow reactor (v = 5 litres)

Answer:(A)

47

The catalyst used in the manufacture of sulphuric acid by contact process is

(A)

iron

(B)

aluminium oxide

(C)

nickel

(D)

vanadium pentoxide

Answer:(D)

48

Sulphuric acid produced by contact process is

(A)

cheaper

(B)

pure and concentrated

(C)

of poor quality

(D)

very dilute

Answer:(B)

49

When sulphur dioxide is passed through a solution of hydrogen sulphide in water

(A)

A sulphuric acid is formed in solution

(B)

sulphurous acid is formed in solution

(C)

sulphur is precipitated

(D)

no change is observed

Answer:(C)

50

The allotrope of sulphur which is insoluble in carbon disulphide is

(A)

monoclinic suphur

(B)

rhombic sulphur

(C)

milk of sulphur

(D)

plastic sulphur

Answer:(D)

51

The form of sulphur which is the most stable at ordinary temperature is

(A)

Monoclinic

(B)

plastic

(C)

rhombic

(D)

flowers of sulphur

Answer:(C)

52

Select the correct statement

(A)

Electrolysis cell uses exothermic reactions to produce electrical energy

(B)

In the electrolysis cell the positive current flows from the positive electrode to the negative electrode outside the cell

(C)

Electrolysis cell uses electrical energy to produce endothermic chemical changes

(D)

In the electrolysis cell the positive current flows from the negative electrode to the positive electrode inside the cell

Answer:(C)

53

The degree of ionisation does not depend upon

(A)

nature of solvent

(B)

nature of solute

(C)

temperature

(D)

current strength

Answer:(D)

54

When the same quantity of electricity is passed through different solutions the amounts of different substances produced are proportional to

(A)

their atomic weight

(B)

their molecular weight

(C)

their equivalent weight

(D)

the square of their equivalent weight

Answer:(C)

55

The quantity of electricity required to deposit one gram equivalent of any substance is

(A)

one coulomb

(B)

one faraday

(C)

one ampere

(D)

one microfaraday

Answer:(B)

56

The percentage by volume of argon in the air is about

(A)

2.97%

(B)

0.94%

(C)

0.01%

(D)

0.00%

Answer:(B)

57

Nitrogen gas is used

(A)

as protective atmosphere to prevent oxidation in metal working and food preservation

(B)

for welding

(C)

for cutting of metals

(D)

as refrigerant

Answer:(A)

58

The angle between any two diagonals of a cube is :

(A)

$\cos \theta = \sqrt{3}/2$

(B)

$\cos \theta = 1/\sqrt{2}$

(C)

$\cos \theta = 1/3$

(D)

$\cos \theta = 1/\sqrt{6}$

Answer:(D)

59

The point equidistant from the four points (a,0,0), (0,b,0), (0,0,c) and (0,0,0) is :

(A)

(a,b,c)

(B)

(a/2,b/2,c/2)

(C)

(a/3,b/3,c/3)

(D)

None of these

Answer:(B)

60

The line joining the points (1,1,2) and (3, -2 ,1) meets the plane 3x+2y+z = 6 at the point :

(A)

(1,1,2)

(B)

(3,-2 ,1)

(C)

(2,-3,1)

(D)

(3,2 ,1)

Answer:(B)

61

Two balls are drawn at random with replacement from a box containing 10 black and 8 red balls. Find the probability that both balls are red ?

(A)

11/81

(B)

16/81

(C)

20/81

(D)

40/81

Answer:(B)

62

Two cards are drawn at random and without replacement from a pack of 52 playing cards. Find the probability that both the cards are black ?

(A)

7/109

(B)

6/109

(C)

10/102

(D)

25/102

Answer:(D)

63

A die is tossed thrice. Find the probability of getting an odd number at least once ?

(A)

7/5

(B)

6/5

(C)

7/8

(D)

2/8

Answer:(C)

64

Laplace transform of the unit impulse function δ(t– a) is :

(A)

e–as

(B)

eas

(C)

e–t

(D)

None of these

Answer:(A)

65

L [eat] is:

(A)

1/s+a

(B)

1/s

(C)

1/s-a

(D)

None of these

Answer:(C)

66

The Laplace transform of t3 δ(t– 4) is :

(A)

43 e–4s

(B)

34 e3s

(C)

e4s 32

(D)

None of these

Answer:(A)

67

L[f ’(t)] is :

(A)

S L[f(t)] – f(0)

(B)

F(s)

(C)

S L[f(t)]

(D)

None of these

Answer:(A)

68

L [et] is:

(A)

1/s-log2

(B)

1/s+log2

(C)

1/s+2

(D)

None of these

Answer:(A)

69

What is model testing?

(A)

Overall testing

(B)

Function testing

(C)

Partial testing

(D)

Performance testing

Answer:(D)

70

When is the fluid called laminar?

(A)

Low viscosity

(B)

The density of the fluid is high

(C)

Reynolds number is greater than 2000

(D)

Reynolds number is less than 2000

Answer:(D)

71

Which among the following provides the third principle in fluid mechanics?

(A)

Conservation of Heat

(B)

Conservation of volume

(C)

Conservation of linear momentum

(D)

Conservation of mass

Answer:(C)

72

When a fluid is subjected to resistance, it undergoes a volumetric change due to _____

(A)

Cohesion

(B)

Strain

(C)

Compressibility

(D)

Adhesion

Answer:(C)

73

The compressible flow is assumed to be _____

(A)

Adiabatic only

(B)

Isentropic only

(C)

Isentropic and adiabatic

(D)

Polytropic

Answer:(B)

74

Principle of fluid mechanics works on the utilization of_____

(A)

Velocity

(B)

Accelerating mass

(C)

Volume

(D)

Work

Answer:(D)

75

Open channel flow takes place _____

(A)

In a pump

(B)

Within a cylindrical depth

(C)

On a free surface

(D)

In the pipe

Answer:(C)

76

Which of the following is a type of fluid based on viscosity?

(A)

Real Fluid

(B)

Ideal Fluid

(C)

Newtonian Fluid

(D)

All of the mentioned

Answer:(D)

77

The viscous force the relative motion between the adjacent layers of a fluid in motion. Which of the following flowing fits best in the sentence?

(A)

never affects

(B)

may effect under certain conditions

(C)

facilitates

(D)

opposes

Answer:(D)

78

Pressure intensity or force due to pressure gradient for fluid at rest is considered as which of the following kind of force?

(A)

Body force

(B)

Force due to motion

(C)

Surface force

(D)

None of the mentioned

Answer:(C)

79

Pressure variation for compressible fluid is maximum for which of the following kind of process?

(A)

Adiabatic

(B)

Quasi Static

(C)

Isothermal

(D)

None of the mentioned

Answer:(C)

80

Which of the following principle is used for calculating the centre of pressure?

(A)

Principle of balancing of momentum

(B)

Principle of momentum

(C)

Principle of conservation of energy

(D)

None of the mentioned

Answer:(A)

81

A 25 mm diameter egg roll (k = 1 W/m degree) is roasted with the help of microwave heating. For good quality roasting, it is desired that temperature at the center of roll is maintained at 100 degree Celsius when the surrounding temperature is 25 degree Celsius. What should be the heating capacity in W/m^3 of the microwave if the heat transfer coefficient on the surface of egg roll is 20 W/m^2 degree?

(A)

613.31 k W/m^3

(B)

93.31 k W/m^3

(C)

6713.31 k W/m^3

(D)

213.31 k W/m^3

Answer:(D)

82

The rate of heat transfer for a plane wall of homogenous material with constant thermal conductivity is given by which of the following equation?

(A)

$Q = 2k/\delta x$

(B)

$Q = 2kA\delta x$

(C)

$Q = kA (t1-t2)/\delta$

(D)

$Q = 2kAx/ \delta$

Answer:(C)

83

The appropriate rate equation for convective heat transfer between a surface and adjacent fluid is prescribed by which law?

(A)

Newton's law of cooling

(B)

Kirchhoff's law

(C)

Newton's first law

(D)

Wein's displacement law

Answer:(A)

84

A wire of radius 3 mm and 1.25 m length is to be maintained at 60 degree Celsius by insulating it by a material of thermal conductivity 0.175 W/m K. The temperature of surrounding is 20 degree Celsius with heat transfer coefficient 8.5 W/ m^2 K. Find percentage increase in heat loss due to insulation?

(A)

124.23%

(B)

100.00%

(C)

12.55%

(D)

134.46%

Answer:(D)

85

A heating unit is made in the form of a vertical tube of 50 mm outside diameter and 1.2 m height. The tube is fitted with 20 steel fins of rectangular section with height 40 mm and thickness 2.5 mm. The temperature at the base of fin is 75 degree Celsius, the surrounding air temperature is 20 degree Celsius and the heat transfer coefficient between the fin as well as the tube surface and the surrounding air is 9.5 $W/m^2 K$. If thermal conductivity of the fin material is 55 W/m K, find the amount of heat transferred from the tube without fin

(A)

118.44 W

(B)

98.44 W

(C)

8.44 W

(D)

908.44 W

Answer:(B)

86

What is the rate of heat transfer from the fin in case of fin insulated at the tip?

(A)

(h P k)1/2 (t 0 – t a) tan h ml

(B)

(h P A)1/2 (t 0 – t a) tan h ml

(C)

(h P k A)1/2 (t 0 – t a) tan h ml

(D)

(h k A)1/2 (t 0 – t a) tan h ml

Answer:(C)

87

"Consider the following statements pertaining to heat transfer through fins

(i) They must be arranged at right angles to the direction of flow of working fluid

(ii) The temperature along the fin is variable and accordingly heat transfer rate varies along the fin elements

(iii) Fins are equally effective irrespective whether they are on the hot side or cold side of the fluid

(iv) Fins are made of materials that have thermal conductivity higher than that of wall

Identify the correct statements"

(A)

i and ii

(B)

iii and iv

(C)

i and iv

(D)

ii and iii

Answer:(A)

88

In which of the following cases provision of fins on a given heat transfer surface will be more effective?

(A)

Fewer but thin fins

(B)

Large number of thin fins

(C)

Large number of thick fins

(D)

Fewer but thick fins

Answer:(B)

89

What are the relevant boundary conditions in case of heat transfer from a bar connected to two heat sources at different temperatures?

(A)

$\alpha = \alpha_1$ at $x = 1$ and $\alpha = \alpha_2$ at $x = 2L$

(B)

$\alpha = \alpha_1$ at $x = 0$ and $\alpha = \alpha_2$ at $x =$ infinity

(C)

$\alpha = \alpha_1$ at $x = 0$ and $\alpha = \alpha_2$ at $x = L$

(D)

$\alpha = \alpha_1$ at $x =$ infinity and $\alpha = \alpha_2$ at $x = 1$

Answer:(C)

90

Radiation heat transfer is characterized by

(A)

Movement of discrete packets of energy as electromagnetic waves

(B)

Due to bulk fluid motion, there is a transport of energy

(C)

There is the circulation of fluid by buoyancy effects

(D)

Thermal energy transfer as vibrational energy in the lattice structure of the material

Answer:(A)

91

A thin metal plate of 4 cm diameter is suspended in atmospheric air whose temperature is 290 K. This plate attains a temperature of 295 K when one of its faces receives radiant energy from a heat source at the rate of 2 W. If heat transfer coefficient on both surfaces of the plate is stated to be 87.5 $W/m^2 K$, workout the reflectivity of the plate.

(A)

0.15

(B)

0.55

(C)

0.25

(D)

0.45

Answer:(D)

92

Measurement of pressure in ammonia reactor is done by

(A)

Bourdon gauge

(B)

U-tube manometer

(C)

Inclined tube manometer

(D)

Pirani guage

Answer:(A)

93

With increase in temperature, the electrical conductivity of the platinum used in the resistance thermometer

(A)

Increases

(B)

Decreases

(C)

Remains constant

(D)

Increases exponentially

Answer:(B)

94

Normal mercury thermometer can be used to measure a temperature of about 300°C. However, its maximum temperature measurement range can be increased upto about 500°C by

(A)

Filling nitrogen under pressure in the stem

(B)

Increasing the diameter of the tube

(C)

Using steel tube in place of glass tube

(D)

Accounting for the tube expansion

Answer:(A)

95

An emf of the order of mV is generated when two solutions of different hydrogen ion concentration are separated by a thin glass wall. This is the working principle of a

(A)

PH meter

(B)

Polarimeter

(C)

Chromatograph

(D)

Polarograph

Answer:(A)

96

A negative gain margin expressed in decibels means a/an _____ system.

(A)

Stable

(B)

Unstable

(C)

Critically damped

(D)

None of these

Answer:(B)

97

Strain gage pressure transducers are used to measure _____ pressures.

(A)

Gage as well as vacuum

(B)

Absolute as well as differential

(C)

Gage as well as vacuum & Absolute as well as differential

(D)

None

Answer:(C)

98

Pressure of 0.0001 absolute psi can be measured by _____ gauge.

(A)

Mcloid

(B)

Pirani

(C)

Thermocouple

(D)

None of these

Answer:(A)

99

Pressure of 0.01 psi (absolute) can be measured by _____ gauge.

(A)

Ionization

(B)

Pirani

(C)

Mcloid

(D)

None of these

Answer:(C)

100

Dome temperature of blast furnace stove is most accurately measured by a

(A)

Radiation pyrometer

(B)

Platinum-platinum/rhodium thermocouple

(C)

Iron-constantan thermocouple

(D)

Platinum resistance thermometer

Answer:(B)

101

Humidity of air can be determined by a

(A)

Chromatograph

(B)

Sling psychrometer

(C)

Mass spectrometer

(D)

Polarimeter

Answer:(B)

102

Thermodynamic Celsius scale of temperature measurement is

(A)

Defined on the basis of melting point of ice and evaporation temperature of water vapor

(B)

Defined on the basis of melting point of ice and condensation temperature of water vapor

(C)

Having an interval of 100° between ice point to steam point

(D)

Defined on the basis of melting point of ice and condensation temperature of water vapor & Having an interval of 100° between ice point to steam point

Answer:(D)

103

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

Answer:(A)

104

The diffusion co-efficient in m^2/s. of acetic acid in benzene (liquid in liquid) is

(A)

2.09×10^{-4}

(B)

2.09×10^{-5}

(C)

2.09×10^{-9}

(D)

2.09×10^{-12}

Answer:(A)

105

The relative saturation of a partially saturated mixture of vapour and gas can be increased by _____ of the mixture.

(A)

Reducing the total pressure

(B)

Increasing the total pressure

(C)

Reducing the temperature

(D)

Increasing the total pressure & Reducing the temperature

Answer:(D)

106

Experimental determination of _____ is done by wetted wall column method.

(A)

Diffusion co-efficient

(B)

Mass transfer co-efficient

(C)

NTU

(D)

None of these

Answer:(B)

107

Powdery materials can be guarded against caking tendency on storage by

(A)

Providing irregular grain size

(B)

Providing minimum percentage of voids

(C)

Having maximum possible points of contact

(D)

None of these

Answer:(D)

108

Measurement of the interfacial area of mass transfer is achieved easily & accurately in case of a

_____ coloumn.

(A)

Spray

(B)

Packed

(C)

Bubble cap plate

(D)

Wetted wall

Answer:(D)

109

The equilibrium liquid composition compared to the vapor composition in case of azeotropic mixture is

(A)

More

(B)

Less

(C)

Same

(D)

Either more or less; depends on the system

Answer:(C)

110

When the gas to be dissolved in liquid is a/an _____ then normally co-current adsorber are used.

(A)

Mixture of two gases

(B)

Pure gas

(C)

Ideal gas

(D)

Sparingly soluble gas

Answer:(B)

111

Coffee is prepared from coffee beans by leaching with

(A)

Cold water

(B)

Hot water

(C)

Dilute hot caustic solution

(D)

Naphtha

Answer:(B)

112

Flooding in a distillation column is detected by a sharp

(A)

Increase in Murphree plate efficiency

(B)

Decrease in pressure drop

(C)

Decrease in liquid hold up in the coloumn

(D)

Increase in pressure drop

Answer:(D)

113

With increase in the liquid flow rate at a fixed gas velocity in a randomly packed counter current gas-liquid absorption column, the gas pressure drop

(A)

Decreases

(B)

Remains unchanged

(C)

Increases

(D)

Decreases exponentially

Answer:(C)

114

Thickness of the frame of a plate and frame filter as compared to that of plates is

(A)

Less

(B)

Same

(C)

More

(D)

Same or Less

Answer:(C)

115

For couplings and unions would be

(A)

60

(B)

200

350

(D)

Negligible

Answer:(D)

116

In case of a ‘thin’ pressure vessel, the ratio of its diameter to wall thickness is

(A)

< 10

(B)

> 10

(C)

> 20

(D)

30

Answer:(B)

117

A pressure vessel is said to be made of ‘thick’ shell, if the ratio of its diameter to wall thickness is

(A)

10

(B)

40

(C)

20

(D)

30

Answer:(A)

118

Liquid redistribution should be done in a packed tower packed with 64aschig rings every 6 metres or

_____ times the column diameter, whichever is lower.

(A)

2.5-3.0

(B)

5-7.5

(C)

10-12.5

(D)

15-20

Answer:(A)

119

Shortest distance between two tubes is

(A)

Called tube pitch

(B)

Called tube clearance

(C)

More in case of triangular pitch as compared to square pitch of tube layout

(D)

None of these

Answer:(B)

120

A rivetted joint does not fail by _____ of rivets.

(A)

Tearing

(B)

Shearing

(C)

Tearing of the plate across a row

(D)

None of these

Answer:(D)

121

_____ dished head is the strongest of all.

(A)

Hemispherical

(B)

Elliptical

(C)

Tori spherical

(D)

None of these

Answer:(A)

122

Value of Peclet number = ∞, is the representative of

(A)

Laminar flow

(B)

Complete back mixing

(C)

Plug flow

(D)

Eddy diffusivity = 0

Answer:(C)

123

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

(A)

Sieve

(B)

Valve

(C)

Counterflow

(D)

Bubble cap

Answer:(D)

124

Rate of filtrate delivery is inversely proportional to the

(A)

Filtering area & the pressure difference driving force

(B)

Viscosity of filtrate

(C)

Cake & filter medium resistance

(D)

Filtering area & the pressure difference driving force & Viscosity of filtrate

Answer:(D)

125

At 100°C, a sealed rigid vessel with a volume of 1 m^3 and 2 kg of water has a volume of 1 m^3. The vessel has now been warmed up. What pressure should a safety pressure valve be adjusted to achieve a maximum temperature of 200°C if one is installed?

(A)

431.3 kPa

(B)

231.3 kPa

(C)

831.3 kPa

(D)

131.3 kPa

Answer:(A)

126

When the diver is 8 meters below the surface, the pressure gauge on his air tank reads 60 kPa. The gauge pressure will be 0 at what depth?

(A)

44.118 m

(B)

24.118 m

(C)

34.118 m

(D)

None of the mentioned

Answer:(B)

127

Which of the following is chosen as the standard thermometric substance?

(A)

Liquid

(B)

Solid

(C)

Gas

(D)

None of the mentioned

Answer:(C)

128

What is the magnitude of mechanical work?

(A)

product of the force and distance travelled perpendicular to the force

(B)

product of the force and distance travelled parallel to the force

(C)

sum of the force and distance travelled perpendicular to the force

(D)

sum of the force and distance travelled parallel to the force

Answer:(B)

129

Which of the following gives the Mechanical efficiency of the engine?

(A)

IP/BP

(B)

1/(BP*IP)

(C)

(BP*IP)

(D)

BP/IP

Answer:(D)

130

Which of the following type of motion does Shaft uses to do work?

(A)

vertical motion

(B)

horizontal motion

(C)

rotational motion

(D)

none of the mentioned

Answer:(C)

131

A refrigerator with a 2 kW motor for powering the compressor gives 6000 kJ of cooling to the refrigerated space during 30 minutes of operation in a thermally insulated kitchen. Calculate the change in internal energy of the kitchen if the condenser coil behind the refrigerator rejects 8000 kJ of heat to the kitchen over the same time period.

(A)

3600 Kj

(B)

2400 Kj

(C)

4800 Kj

(D)

none of the mentioned

Answer:(A)

132

At 15°C, a steel pot with a 5 mm thick bottom is filled with liquid water (conductivity 50 W/m K). The pot has a 10 cm radius and is now placed on a stove with a heat transmission of 250 W. Calculate the temperature on the bottom of the outer pot assuming the inner surface is 15°C.

(A)

15.8°C

(B)

16.8°C

(C)

18.8°C

(D)

19.8°C

Answer:(A)

133

Heat flow into a system is ____, and heat flow out of the system is _____

(A)

positive, positive

(B)

negative, negative

(C)

negative, positive

(D)

positive, negative

Answer:(D)

134

What does (m*g*z) give?

(A)

macroscopic kinetic energy

(B)

microscopic kinetic energy

(C)

macroscopic potential energy

(D)

microscopic potential energy

Answer:(C)

135

The enthalpy and internal energy are the function of temperature for

(A)

all gases

(B)

steam

(C)

water

(D)

ideal gas

Answer:(D)

136

Fill in the blanks

He and she..... watching a movie now.

A.

do

b.

is

c.

are

D.

were

Answer:(C)

137

Fill in the blanks

He didn’t wait even..... minutes but started a lecture.

A.

few

B.

a few

C.

little

D.

a little

Answer:(A)

138

Fill in the blanks

He divided his property..... his two sons.

A.

among

B.

in

C.

between

D.

in

Answer:(C)

139

Fill in the blanks

He is very weak. He..... more.

A.

can walk

B.

can be not walked

c.

cannot walk

D.

can’t

Answer:(C)

140

Fill in the blanks

He or she..... watching a movie now.

A.

is

B.

are

C.

does

D.

has

Answer:(A)

141

Fill in the blanks

He reminds us ….. Paul Walker.

A.

about

B.

of

C.

for

D.

with

Answer:(B)

142

Fill in the blanks

How ….. you ….. solve this puzzle?

A.

can solved

B.

can be solved

C.

do solved

D.

can solve

Answer:(D)

143

Fill in the blanks

How many friends ….. she ….. ?

A.

do have

B.

does has

C.

does have

D.

are has

Answer:(C)

144

Fill in the blanks

How many kites ….. in the sky now ?

A.

are fly

B.

flying

C.

are flying

D.

have

Answer:(C)

145

Fill in the blanks

I_____always capital.

A.

am

B.

is

C.

has

D.

do

Answer:(B)

146

synonym of Tentative

(A)

mocking

(B)

wry

(C)

experimental

(D)

prevalent

Answer:(C)

147

synonym of Tenacity…..

(A)

ingratitude

(B)

decimation

(C)

splendor

(D)

perseverance

Answer:(D)

148

synonym of Replenish….

(A)

reinstall

(B)

refill

(C)

refuse

(D)

polish

Answer:(B)

149.

Antonym of Full

a)

Tranquil

b)

Unimportant

c)

hidden

d)

Empty

Answer:(D)

150

Antonym of Yesteryear

a)

Host

b)

Foundling

c)

Modern

d)

Repercussion

Answer:(C)