CHEMICAL ENGINEERING

- 1. Bernoulli's equation for steady frictionless, continuous fluid flow states that the is same at all sections. (A) total energy

(B) total pressure

(B) total pressure

(C) velocity head

(D) total mass

(ost commonly used joint in the underground p.oc. lines is the

(A) flange

(C) sleeve joint

(D) expansion joint

(A) Bingham: p 1. Bernoulli's equation for steady frictionless,

is same at all sections.

(A) total energy

(B) total pressure

(C) velocity head

(D) total mass

2. Most commonly used joint in the undergrou

(A) flange

(B) coupling

(
	- (A) total energy
	- (B) total pressure
	- (C) velocity head
	- (D) total mass

2. Most commonly used joint in the underground p.p. lines is the

- (A) flange
- (B) coupling
- (C) sleeve joint
- (D) expansion joint

3. Quicksand is an example of μ fluid

- (A) Bingham plastic
- (B) dilatant
- (C) Newtonian
- (D) Ps udo plastic

4. In the venturi meter, he velocity in the upstream cone.

- (A) decreases
- (B) remains constant
- (C) increa es
- (D) b comes zero

5. _____ is defined as the ratio of the shear stress to the product of the velocity head and density. is same at all sections.

(A) total mergy

(C) velocity bead

(D) total mease

(D) total mease

(D) total mease

(B) coupling

(B) coupling

(B) comparison joint

(D) experient

(D) experient

(D) F-S udo – plastic

(D) F CUSAT COMMON ADMISSION TEST ²⁰¹⁹

- (A) Drag force
- (B) Drag coefficient
- (C) Friction factor
- (D) Coefficient of discharge
- 6. Number of gm moles of solute dissolved in one litre of a solution is called its
	- (A) equivalent weight
	- (B) molarity
	- (C) molality
	- (D) normality

7. A bypass stream in a chemical process is useful because it

- (A) facilitates better control of the process
- (B) improves the conversion
- (C) increases the product yield
- (D) enriches the product quality

8. A limiting reactant is the one which decides the \Box in the chemical reaction (A) equivalent weight

(B) molarity

(C) molality

(D) normality

(D) normality

(A) facilitates better control of the process

(B) improves the conversion

(C) increases the product yield

(D) enriches the product qualit

- (A) equilibrium constant
- (B) reaction order
- (C) rate constant
- (D) conversion
- 9. A gaseous mix ur , antains 14 kg of N_2 , 15 kg of O_2 and 17 kg of NH₃. The mole fraction of oxygen is (b) normality

bypass stream in a chemical process is useful because it

(A) facilitates better control of the process

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(E) r (D) normality

A bypass stream in a chemical process is useful because it

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(D) carriers the product quality

(A) facilities the product qual COMMON AND 14 kg (6 N₂, 1 i kg of O₂ and 17 kg of NH₃. The mole frection

Extreme that the state of reaction with

Of moles

ure

that and 2 grams nitrogen by mass. The actual quantity of urea sample is

ar formul
	- (A) 0.16
	- (E) 0.66
	- $(C) 0.25$
	- (D) 0.47

10. Kirch^{\cdot} off's equation relates heat of reaction with

- \sum pressure
- (B) volume
- (C) number of moles
- (D) temperature
- 11. Urea sample contains 42 grams nitrogen by mass. The actual quantity of urea sample is (molecular formula of vrea is CH_4N_2O and molecular weight = 60 gm mol)
	- (A) 90 grams
	- (B) 80 grams
	- (C) 95 grams
	- (D) 60 grams
- 12. The ratio of the actual mesh dimension of Taylor series to that of the next smaller screen is
	- (A) 2
	- (B) $\sqrt{2}$
	- (C) 1.5
	- (D) $\sqrt{3}$
- 13. The work required in crushing is proportional to the new surface created. This is the statement of crushing law. CUSAT COMMON COMMO (C) 1.5

The work required in crushing is proportional to the new surface created. This is the

statement of $\frac{1}{\sqrt{2}}$ crushing law.

(A) Kittinger's

(C) Bond's

(D) Hooke's

Solids may be broken using a harmer by
 is

(A) 2

(B) $\sqrt{2}$

(C) 1.5

(D) $\sqrt{3}$

13. The work required in crushing is proportion.

statement of crushing law.

(A) Kick's

(B) Rittinger's

(C) Bond's

(D) Hooke's

(A) Compression

(A) compression

(A) compr
	- (A) Kick's
	- (B) Rittinger's
	- (\mathbb{C}) Bond's
	- (D) Hooke's

Solids may be broken using a hammer by \Box we of action

- (A) compression
- (B) attrition
- (C) impact
- (D) cutting

15. $\frac{1}{15}$ is an example for filter and used to increase filtration rate. Proper for fil. w. ... used to increase filtration rate.

Decision ear.in

filter medium resistance is

CUSAT

- (A) α *m*ino acⁱ 1
- (B) lignin
- (C) diatomace λ ear Λ
- (D) sucrose

16. The SI unit of filter medium resistance is

- (k) m⁻¹
- (B) m²/gm
- (C) m/kg
- (D) kg m⁻²
- 17. During filtration, as time passes the pressure drop across the unit
	- (A) always decreases
	- (B) remains constant
	- (C) first increase and then decrease
	- (D) always increases
- 18. What is the critical speed in revolutions per second, for a ball m. $\frac{1}{2}$ of 1.2 m diameter charged with 70 mm diameter balls? (D) always increases

Vhat is the critical speed in revolutions per second, for a bull m, $\frac{1}{2}$ of $\frac{1}{2}$ m diameted with 70 evin diameter balls?

(A) 0.5

(B) 1.0

(C) 2.76

(D) 0.66

he raw materials required for (A) always decreases

(B) remains constant

(C) first increase and then decrease

(D) always increases

(D) always increases

(B) always increases

(A) 0.5

(A) 0.5

(B) 1.0

(C) 2.76

(D) 0.66

(B) 1.0

(C) 0.66

(B) amm
	- (A) 0.5
	- $(B) 1.0$
	- $(C) \sim 2.76$
	- (D) 0.66
	- The raw materials required for the manufacture of soda ash by Solvay process are
		- (A) brine, limestone and coal
		- (B) ammonia, $CO₂$ and laked lime
		- (C) ammonia, CO and calcium sulphate
		- (D) sulphur, $oxygen e_n⁴$ ammonia

20. Rancidity of fetty o^{i} can be reduced by its

- (A) decoloration
- $(E \setminus \text{hyd}$ ogenation
- (C) oxidation
- (D) hydrolysis
- 21. Power consumption during turbulent flow in agitation tank is proportional to the of the liquid. (D) always increases

What is the critical sixed in revolutions per second, for a ball man or, 1.2 m diameter

charged with 70 pim diameter balls?

(A) 0.5

(C) 2.76

(D) 0.66

(B) ammonia, CO area laked lime

(B) ammonia oxygen e^{-t} ammonia
ty oi! can be reduced by its
tion
tion
tion
tion
tion
dating turbulent flow in agitation task is proportional to the of
conductivity
ension
dalong with paint to
the enterprise of all along with paint
	- (A) viscosity
	- (B) thermal conductivity
	- (C) density
	- (D) surface tension
- 22. Thinner is added along with paint to
	- (A) accelerate the oxidation of oil
	- (B) prevent gelling of paint
	- (C) suspend pigments and dissolve film forming materials
	- (D) form a protective film
- 23. The ideal pulp for the manufacture of paper should have high content.
	- (A) chlorophyll
	- (B) lignin
	- (C) iron
	- (D) cellulose

24. Ziegler process

- (A) employs high pressure
- (B) produces high density polyethylene
- (C) uses no catalyst
- (D) produces low density polyethylene

25. The raw materials required for the manufacture of Nylon – 66 are (b) cellulose

(c) eigler process

(b) envolves high pressure

(c) uses no catalyst

(c) uses no catalyst

(c) uses no catalyst

(c) there are not density polyethylene

(c) hexamethylene diamine ϵ rd adipic acid

(c) h (b) cellulose

Ziegler process

(A) employs high density polyethylene

(B) produces high density polyethylene

(D) areas o eatalyst

(D) areas of the manufactic exploration

(A) hexamethylene dains in earl and inclusive a (A) chlorophyll

(B) lignin

(C) iron

(D) cellulose

24. Ziegler process

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25. The raw materi

- (A) hexamethylene diamine ϵ nd adipic acid
- (B) caprolactum and epoxy resing
- (C) hexamethylene di₄ ine and maleic at hydride
- (D) dimethyl terephthalate and ethylene glycol
- 26. Alum is used as a coaguiant in water treatment to remove Communication Section
Custom Custom Cust
	- (A) color
	- (B) turbidity
	- (C) bacteria
	- (D) A_{1}^{V} of the above
- 27. Hydrazine (N_2H_4) , s used mainly as an
	- (A) explos ve
	- (2) det gent additive
	- (V) rocket fuel
	- (D) antibiotic

28. Bakelite is a type of resin

- (A) polyacrylic
- (B) phenol formaldehyde
- (C) urea formaldehyde
- (D) polyester

29. Heat flux is the time rate of heat transfer per unit

- (A) length
- (B) cross sectional area
- (C) volume
- (D) thickness

30. humber is the ratio between the temperature gradient at the wall to the average temperature gradient across the entire pipe. (D)

thickness

mumber is the ratio between the temperature gradient at the well to the

mperature gradient across the entire pipe.

(A) Grashof

(B) Fourier

C) Rayleigh's

rashof number is the ratio between

and visco, s (D) thickness

number is the radio between the temperature gradient at the well to the average

temperature gradient across the entire pipe.

(A) Grasfior

(C) Rayleigh's

(D) Nusselt

(D) Nusselt

(B) heat capacity

(C) (A) length

(B) cross sectional area

(C) volume

(D) thickness

30. mumber is the ratio between the temp

temperature gradien across the entire pipe.

(A) Grashof

(C) Nusselt

31. Grashof number is the ratio between

(A

- (A) Grashof
- (B) Fourier
- (C) Rayleigh's
- (D) Nusselt

Grashof number is the ratio between and viscous force.

- (A) thermal diffusivity
- (B) heat capacity
- (C) buoyancy force
- (D) gravity force

32. u usually condense in the departure manner.

- (A) steal.
- $(E \setminus$ glycerine
- (C) nitrobenzene
- (D) liquid metals

33. For cross sections other than circular, equivalent diameter is defined as times the hydrauli, radius. CUSAT COMMON ADMISSION TEST ²⁰¹⁹

- (A) two
- (B) ten
- (C) five
- (D) four
- 34. Transmissivity of an opaque solid is
	- (A) unity
	- (B) zero
	- (C) infinity
	- (D) negative
- 35. Baffles are installed in the shell side of a heat exchanger to
	- (A) promote cross flow and raise the average velocity of the shell side fluid
	- (B) minimize the cost of heat exchanger
	- (C) increase the heat transfer area
	- (D) avoid the scale formation

36. The diffusivity (D) in a binary gas mixture is related to the temperature (T) as

- (A) $D \alpha T$
- (B) $D \alpha T^{1.5}$
- (C) D α T^{0.5}
- (D) $\partial \alpha T^2$
- $37.$ The enrichment of the vapour stream is it passes up through the distillation column in contact with reflux is called (D) avoid the scale formation

the diffusivity (D) in a binary gas mixture is related to the temp. rate (T) as

(A) D a T

(C) D a T

(C) D a T

(C) D a T

(D) O a T

(D) O a T

(D) passing

(A) reforming

(A) reforming
 (D) avoid the scale formation

The diffusivity (D) in c binary gas mixture is related to the semp-ratice (T) as

(A) D a T

(B) D a T

(D) D a T

(D) D a T

(D) D a T

(D) O a T

(D) O a T

(D) O a T

(D) O a T

(D) certi (A) promote cross flow and raise the average

(B) minimize the cost of heat exchanger

(C) increase the heat transfer area

(D) avoid the scale formation

36. The diffusivity (D) in a binary gas mixture i

(A) D α T

(
	- (A) reforming
	- (B) by passing
	- (C) rectification
	- (D) channeling

38. Azeotropic distillation is employe¹ to separate

- (A) heat *risitive materials*
- (E) high boiling mixture
- (C) mixture with very high relative volatility CUSAT COMMON ADMISSION TEST ²⁰¹⁹
- (D) constant $b \lambda$ ^ting λ zixture

39. Milk r owder is manufactured using \qquad dryer.

- \sum spr \int
- (P) r.eeze
- (C) tray
- (D) rotary
- 40. Radioactive nuclear waste is treated in
	- (A) mixer settler extractor
	- (B) rotating disc contactor
	- (C) pulsed column extractor
	- (D) Bollman extractor
- 41. Decaffeination of coffee is a practical example of process
	- (A) adsorption
	- (B) desorption
	- (C) super critical fluid extraction
	- (D) leaching

42. Wetted wall tower is used in the measurement of

- (A) thermal diffusivity
- (B) mass diffusivity
- (C) viscosity of liquid
- (D) mass transfer coefficient
- 43. The thermostat mechanism to control temperature in water heaters used in houses is type controller. (D) leaching

(Vetted wall tower is used in the measurement of

(A) thermal diffusivity

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(D) mass transfer coefficient

the thermostat mechanism to control empet ture in wear heater used in h (b) leaching

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(D) vascs that is controller.

The thermostat mechanism to control emperature in waver heater used in houses is (A) adsorption

(B) desorption

(C) super critical fluid extraction

(D) leaching

42. Wetted wall tower is used in the measureme

(A) thermal diffusivity

(B) mass fliftusivity

(C) viscosity of liquid

(D) mass transfer
	- (A) proportional
	- (B) proportional derivative
	- (C) pneumatic
	- (D) on-off

44. Wet bulb and dry bulb temperatures become identical at experient saturation curve

- (A) 50
- (E) 75)
- (C) 25
- (D) 100

45. Sherwood number in mass transfer is analogous to the number of heat transfer

- \bigcap Grashof
- (B) \dot{B}
- (C) Nusselt
- (D) Froude
- 46. The step response of a first order system reaches of its ultimate value when the time elapsed is equal to one time constant. Exploration of the specifical state of the state of a first order system reaches of a first order system reaches of a first order system reaches of its ultimate value whe
	- $(A) 50%$
	- (B) 75%
	- (C) 63.2%
	- (D) 99%
- 47. For step response of a second order system, when the damping ratio ζ <1 the response is said to be said to be

(A) critically damped

(B) over damped

(C) non oscillatory

(D) under damped

48. An example for final control element in a cc

(A) reactor

(B) control valve

(C) chermometer

(D) comparator

(A) elimination
	- (A) critically damped
	- (B) over damped
	- (C) non oscillatory
	- (D) under damped

48. An example for final control element in a control system is

- (A) reactor
- (B) control valve
- (C) thermometer
- (D) comparator

Use of integral control along with proportional control facilitates C compared to the model of the model of the property of the property of the property of the comparator

A property of the moment of the comparator

C thermometer

C comparator

Se of integral control along with properties (C) non oscillatory

An example for first control element in a control system is

(A) reactive

(B) control valve

(C) chemometer

(D) comparator

(D) comparator

(B) climination of frests, ortation lag

(C) relation of f

- (A) elimination of offset
- (B) elimination of transportation lag
- (C) reduction of stability ι , me
- (D) the increase in error signal strength
- 50. The forcing function used in frequency response analysis is
	- (A) step
	- $(E \setminus \text{pulse})$
	- (C) sinusoidal
	- (D) ramp
- 51. For plotting the Bode diagram graphs, the variables required are Sales in en consideration

existence and the required are required are ratio, frequency and phase angles

certain, frequency and phase angle

existing the ratio, frequency and phase angle

frequency and offset

intensive p
	- $\langle \cdot \rangle$ am, litude ratio, frequency and phase angle
	- (B) amplitude ratio, frequency and time
	- (C) amplitude ratio, frequency and controller gain
	- (D) root locus, frequency and offset
- 52. An example for intensive property is
	- (A) mass
	- (B) density
	- (C) volume
	- (D) number of moles
- 53. Efficiency of a heat engine working on Carnot cycle between two temperature levels depends upon the depends upon the

(A) volume of working fluid

(B) pressure of working fluid

(C) mass of working fluid

(D) two temperatures only

54. Compressibility factor of an ideal gas is

(A) zero

(B) unity

(C) megative

(D) infi
	- (A) volume of working fluid
	- (B) pressure of working fluid
	- (C) mass of working fluid
	- (D) two temperatures only
	- 54. Compressibility factor of an ideal gas is
		- (A) zero
		- (B) unity
		- (C) negative
		- (D) infinity

Entropy is a measure of the $\qquad \qquad$ of a system

- (A) disorder
- (B) orderly behaviour
- (C) temperature changes
- (D) energy content

56. Fugacity and pressure are numerically equal, when the gas is C mass of working fluid

(D) two temperatures only

ompressibility factor of an ideal gas is

(A) zero

(B) unity

C meagative

(D) infinity

muropy is a measure of the of a vsicem

(A) disorder

(D) omperature changes

((C) mass of working fluid

(D) two temperatures only

(D) two temperatures only

Compressibility factor of an ideal gas is

(A) zero

(C) infinity

(D) infinity

Futney is a measure of the of a spacement

(A) disorder

(B ontent

exsure are numeric ¹ly equal, when the gas is

rd state

ressure

moet. 'ure

the the common deals with the activity coefficients in

i.e.

i.e.

repronent

Thomson expansion of gases

remains constant

remains c

- (A) in standard state
- (E) at high pressure
- (C) at low temperature
- (D) in ideal state

57. Van I are q_1 ation deals with the activity coefficients in solution

- $\sum_{k=1}^{\infty}$ binary
- (P) *v*-mary
- (C) azeotropic
- (D) multi component
- 58. During Joule Thomson expansion of gases
	- (A) entropy remains constant
	- (B) enthalpy remains constant
	- (C) temperature remains constant
	- (D) pressure remains constant

59. For an nth order reaction, the unit of rate constant is

- (A) time⁻¹ mole⁻¹
- (B) time⁻¹ concentration⁽ⁿ⁻¹⁾
- (C) time⁻¹ concentration⁽¹⁻ⁿ⁾
- (D) concentration⁽ⁿ⁻¹⁾

60. Arrhenius equation shows the variation of with temperature

- (A) reaction rate
- (B) rate constant
- (C) activation energy
- (D) reaction order

61. Differential method of analyzing kine ic data's is used (A) time⁻¹ mole⁻¹

(B) time⁻¹ concentration⁽ⁿ⁻¹⁾

(C) time⁻¹ concentration⁽¹⁻ⁿ⁾

(D) concentration⁽ⁿ⁻¹⁾

(A) reaction shews the variation of

(A) reaction shews the variation of

(A) reaction shews the var

- (A) for testing complicated mechanism
- (B) when the data's are scatter \mathcal{A}
- (C) when rate expression is simple
- (D) when testing specific rechanism
- 62. For all positive restricts order and in the particular duty, the size of mixed flow reactor is always ${}_{\text{the plug flow 1}}$ actor (b)

then

then the equation shows the variation of the there is with the

(b) reaction rate

(c) activation energy

(b) reaction order

(c) vectors

(c) when the data's are scatter and

(c) when the data's are scatter an (D) concentration^{ts-1}

Arrhenius equation shows the variation of

(A) reaction is

(B) rate constant

(D) activision order

(D) discussion order

(A) for esting complicated a schemain

(A) for esting complicated a schem Example of the plug flow it setter

the plug flow it setter

the plug flow it setter

man

an

an

an

the interval of the plus flow it setter

contains

on of reactant 'A' in a first order reaction $\lambda > B$, decreases

wit
	- (A) small r han
	- $(E \setminus \text{equal to})$
	- (C) ¹ ager than
	- (D) data insufficient, can't predict
- 63. The concentration of reactant 'A' in a first order reaction, $A \rightarrow B$, decreases with time.
	- (λ) linearly
	- (B) exponentially
	- (C) parabolically
	- (D) logarithmically
- 64. A plug flow reactor is characterized by
	- (A) variable residence time
	- (B) axial mixing
	- (C) lateral mixing
	- (D) non flat velocity profile

65. Household domestic refrigerator work on principle of ____ refrigeration cycle

- (A) Carnot
- (B) air
- (C) absorption
- (D) vapour ejection
- 66. Mollier chart is a plot of
	- (A) temperature versus enthalpy
	- (B) temperature versus entropy
	- (C) enthalpy versus entropy
	- (D) temperature versus internal energy

67. Equilibrium constant of a reversible reaction depends mainly on (A) Carnot

(B) air

(C) absorption

(D) vapour ejection

66. Mollier chart is a plot of

(A) temperature versus enthalpy

(B) temperature versus entropy

(C) enthaipy versus entropy

(D) temperature versus internal energ

- (A) initial reactant concentration
- (B) temperature
- (C) pressure
- (D) amount of catalyst

68. The frequency at which the maximum amplitude ratio attained is called _____ frequency. (b) vapour ejection

(b) vapour ejection

(A) temperature versus enthalpy

(B) temperature versus entropy

(C) enthaipy versus entropy

(D) emperature versus internal energy

(D) remperature versus internal energy

(A) ini (D) vapour ejection

Mollier chart is a plot of

(A) temperature versus entropy

(B) temperature versus entropy

(D) eimperature versus internal energy

(D) initial reastant of a reversible r action depends manuly on

(A) Exercit is the maxim, m amplitude ratio attained is called __frequency.

- (A) corner
- (B) cross $v f$
- (C) resonant
- (D) natural

69. Thermistors are u_n devices devices

- (A) vltage measuring
- (2) on emperature measuring
- (C) only temperature compensating
- (D) both temperature measuring and compensating
- 70. At steady state condition in a process, the value of error signal is
	- (A) zero
	- (B) very large
	- (C) negative
	- (D) unity
- 71. The desired value of a variable in a process is also called as
	- (A) controlled variable
	- (B) set point
	- (C) disturbance
	- (D) offset

72. Freundlich equation applies to the adsorption of solute from

- (A) dilute solutions over a small concentration range
- (B) gaseous mixture at high pressure
- (C) highly concentrated solutions
- (D) multi component liquid mixtures
- 73. An operation carried out to recover valuable solute from the absorbing solution and regenerating the solution is called (D) offset

(D) offset

(D) offset

(A) dilute solutions over a small concentration range

(B) gasecous mixture at high pressure

(C) highly concentrated solutions

(D) multi component liquid mixtures

(D) roulti component (D) offset

Freundlich equation applies to the adsorption of solute from

(A) dilute solutions over a small concentration range

(B) gasecons mixture at high pressure

(D) includi component liquid mixtures

(D) dirthuis c (A) controlled variable

(B) set point

(C) disturbance

(D) offset

(D) offset

(A) dilute solutions over a small concentr

(B) gasecus mixture at high pressure

(C) highly concentrated solutions

(D) multi component liq
	- (A) absorption
	- (B) leaching
	- (C) stripping
	- (D) diffusion

74. Heat transfer rate is low in the case of boiling.

- (A) film
- $(E \cap nuc)$ eate
- (C) \sim cooled
- (D) transition

75. For most of ψ e liquids the thermal boundary layer is thinner than the hydrodynamic boundar, layer when Prandtl number is te is low in the case of boiling.

ed

ed

iquids the thermal boundary layer is thinner than the hydrodynamic

when Prandtl number is

unity

unity

unity

tet of high temocrature carbonisation of coal is

i

- (A) less than unity
- (B) equal to unity
- (C) greater than unity
- (D) zero
- 76. The main product of high temperature carbonisation of coal is
	- (A) tar
	- (B) ammonia
	- (C) coke
	- (D) phenol

77. An example for continuous vacuum filter is filter

- (A) plate and frame
- (B) rotary drum
- (C) trickling
- (D) centrifugal

78. Kopp's rule is concerned with the calculation of

- (A) thermal conductivity
- (B) heat capacity
- (C) surface tension
- (D) viscosity

Cavitation occurs in a centrifugal pun p when the suction pressure is (A) plate and frame

(B) rotary drum

(C) trickling

(D) centrifugal

(A) thermal conductivity

(B) heat capacity

(C) surface tension

(D) viscosity

(A) less than the vapour pressure of the li

(B) greater than the vapo

- (A) less than the vapour pressure of the liquid e^t that temperature
- (B) greater than the vapour pressure of the liquid \cdot that temperature (b) contrifugal

opp's rule is concerned with the calculation of

(A) thermal conductivity

(B) heat expacity

(C) surface tension

(D) viscosity

(D) viscosity

(D) viscosity

(A) less than the vapour press ure of the li (D) centrifugal

Kopp's rule is concerned with the calculation of

(A) thermal conductivity

(B) beat equacity

(D) succession

(D) successivy

Cavitation occurs in a centrifugal pun o whe the succion pressure is

(A) les
	- (C) equal to the vapour pressure of the liquid
	- (D) equal to the developed head
- 80. Terminal settling velocity is
	- (A) α ^ductuating velocity
- (B) attain α after moving one half of total distance Customer and the same of the pipe language of the pipe radius of the
	- (C) a uniform velocity with constant acceleration
	- (D) a constant velocity with no acceleration

81. The ratio of neural forces to viscous forces is ________ number.

- (A) $\sqrt{4ach}$
- (P) Weber
- (V) Fourier
- (D) Reynolds

82. Discharge in laminar flow through a pipe varies

- (A) as the square of the pipe length
- (B) inversely as the pressure drop
- (C) inversely as the fluid viscosity
- (D) as the square of the pipe radius
- 83. Pressure drop in a packed bed for laminar flow is given by the equation.
	- (A) Blake Plummer
	- (B) Kozney Karman
	- (C) Fanning's
	- (D) Hagen Poiseuille

84. type of closure is the weakest closure for cylindrical vessels

- (A) Hemispherical
- (B) Torispherical
- (C) Flat plate
- (D) Elliptical

85. The force due to wind load acting on \cdot tall vessel depends upon it. (D) Hagen – Poiseuille

(Let up to Closure is the weakest closure for cylindrical vess. Is

(A) Hemispherical

(B) Torispherical

(C) Flat piate

(D) Elliptical

(A) shape

(C) height

(C) height

(D) shape, diameter and h (D) Hagen – Poiseuille

(A) Hemispherical

(B) Torisphorical

(B) Torisphorical

(D) Elippical

(D) Elippical

(D) Elippical

(D) Shape, diameter

(C) height

(D) shape, diameter and h ight

(D) shape, diameter and h ight (A) Blake – Plummer

(B) Kozney – Karman

(C) Fanning's

(D) Hagen – Poiseuille

84. — type of closure is the weakest closure

(A) Hemispherical

(B) Torispherical

(C) Flat plate

(D) Elliptical

85. The force due to win

- (A) shape
- (B) diameter
- (C) height
- (D) shape, diameter and h ight
- 86. Vertical vessels are not supported by
	- (A) by ckets
	- (B) skirts
	- (C) columns
	- (D) saddles
- 87. Ultimate analysis f coal determines its
	- (A) Carbon, hydrogen, nitrogen and Sulfur
	- (P) moisure, volatile matter and ash
	- (C) calorific value
	- (D) combined molecular mass
- 88. Steel rods are used in reinforced concrete to increase its strength CUSAT COMMON ADMISSION TEST ²⁰¹⁹
	- (A) shear
	- (B) tensile
	- (C) compressive
	- (D) rigidity modulus
- 89. Most suitable material for the storage of concentrated $HNO₃$ is
	- (A) cast iron
	- (B) white metal
	- (C) karbate
	- (D) aluminium alloys

90. The hardest known substance based on Mho scale reading is (D) aluminium alloys

the hardest known substance based on Mho scale reading is

(A) quartz

(B) gypsem

(C) diannond

(D) catcite

(S) correstion resistance

(C) tensile strength

(D) ductility

(D) ductility

(A) w 'ldin (A) cast iron

(B) white metal

(C) karbate

(D) aluminium alloys

90. The hardest known substance based on Mho

(A) quartz

(B) gypscm

(C) dianond

(D) calcite

91. Presence of cobalt in steel improves is

(A) cutting a

- (A) quartz
- (B) gypsum
- (C) diamond
- (D) calcite

91. Presence of cobalt in steel improves its

- (A) cutting ability
- (B) corrosion resistance
- (C) tensile strength
- (D) ductility

92. Ceramic materials \hat{P} brication cannot be done by

- (A) welding
- (B) cast σ
- (C) extrusion
- (D) pressing
- 93. A 'rupture disciple provided in chemical equipments as an accessory meant for (D) aluminium alloys

The hardest known substance based on Mho scale reading is

(A) quantz

(B) gypsem

(D) claicite

(D) claicite

Presence of cobalt in steel improves is

(A) cutting ability

(D) custic strength

(D) d
	- (A) relieving excess pressure
	- (2) creating turbulence
	- (C) enhancing mixing rate
	- (D) avoiding vortex formation
- 94. In the agitators, the power required will be changed with the increase of diameter of agitator (D) as Alexandrian Commons the dome by

Lexandrian commons the dome by

Lexandrian commons as an accessory meant for

excess pressure

turbulence

turbulence

to mover required will be changed with the increase of diameter of

	- (A) D^2
	- (B) D^5
	- $(C) D^{\frac{1}{2}}$
	- $(D) D^{10}$

95. Percentage of hydrogen in coke oven gas may be around

- (A) 10
- (B) 25
- (C) 45
- (D) 60

96. _________ is also called as blue gas.

- (A) Coke oven gas
- (B) Water gas
- (C) Natural gas
- (D) Producer gas
- 97. Orsat analysis is meant for
- (A) finding volumetric composition of flue gases (A) 10

(B) 25

(C) 45

(D) 60

96. is also calied as blue gas.

(A) Coke over gas

(B) Water gas

(C) Natural gas

(D) Producer gas

97. Orsat analysis is meant for

(A) finding volumetric comp sition of flu

(B) finding
	- (B) finding combustion ϵ fficie. \sim
	- (C) finding flame temperature
	- (D) calculating calorific v_x lue of fuel
	- 98. If the value of Γ is \therefore modulus is \geq >1, then the rate controlling factor is (b) 60

	Section 100

	Section 2018

	COM Natural gas

	COM Natural gas

	COM Natural gas

	COM Producer gas

	COM Producer gas

	COM Through commutation of the gas

	COM Through Supplementary and the gas

	COM Through Supplementar (b) 60

	is also calied as blue gas.

	(A) Coke overa gas

	(B) Watcr gas

	(D) Natural gas

	(D) Natural gas

	(D) Aroducer gas

	(D) Aroducer gas

	(D) Aroducer gas

	(A) finding combustion efficie av

	(C) finding temperature wh
		- (A) s_u -face reaction rate
		- (B) diffusion rate
		- (C) pore diameter
		- (D) note length

99. Catalyst support \sqrt{r} arrier) is used to improve

- (A) vrface area
- (2) number of active centre
- (V) s *iectivity*
- (D) reaction rate
- 100. In tanks in series model, the system behaviour approaches plug flow when the number of tanks connected in series becomes The composition rate
exaction rate
exaction rate
action rate
trate
the common rate
rate
exaction for active centre
rate
common common common common common common capacity
of active centre
rate
common common centre in seri
	- (A) zero
	- (B) unity
	- (C) infinite
	- (D) fractional

101. **Example 101.** is not a process step in fluid – particle heterogeneous catalytic reaction

- (A) Desorption
- (B) Absorption
- (C) Surface reaction
- (D) Adsorption

102. BET apparatus is used to determine the of a catalyst.

- (A) pore volume
- (B) bulk density
- (C) specific surface area
- (D) porosity

103. The dimensionless form of step response curve (C_{step}) is called (A) Desorption

(B) Absorption

(C) Surface reaction

(D) Adsorption

102. BET apparatus is used to determine the

(A) pore volume

(B) bulk density

(C) specific surface area

(D) porosity

(A) E - curve

(B) C - curve

- (A) E curve
- (B) C curve
- (C) binomial curve
- (D) F curve

104. For shrinking spherical particles fluid – solid non catalytic reaction subsent CUSAT COMMON (D) Adsorption

BET apparatus is used to determine the

(A) pore vehines

(B) bulk donsity

(D) specific satince area

(D) sponsity

The dimensionless form of step response cut $e(C_{\text{seq}})$ is called

(A) E - curve

(C) bi $\frac{1}{2}$
 $\frac{1}{2}$

- (A) g. film
- (B) ash
- (C) boundary
- (D) buffer zone

105. For a first order α ction, half – life period is the initial reactant concentration

- (A) independent of
- (2) directly proportional to
- (C) inversely proportional to
- (D) varying exponentially with
- 106. Humidity of air can be determined by a
	- (A) chromatograph
	- (B) sling psychrometer
	- (C) mass spectrometer
	- (D) polarimeter

107. The Laplace transform of the function $y(t) = \sin at$ is

- 108. For distillation column, if the nature of $f \sim 1$ is partial vapour, then the moles of liquid flow in the stripping section (q) has the numerical limit
	- (A) $0 < q < 1$
	- (B) $q = 0$
	- (C) $q > 1$
	- (D) $q = 1$

109. The condensing temperature of a single pure substance depends only on the

(A) pressure

(B) temperature

(C) such a CUSAT COMMON ADMINISTRATIVE OF A STRICT OF

- (A) p. ssure
- (B) temperature
- (C) surface area
- (D) density

110. Most commonly we rubber vulcanising agent is

- (A) vomine
- (3) su_h huric acid
- (C) thiokol
- (D) sulphur
- 111. Molasses is the starting material for the production of
	- (A) alcohol
	- (B) edible oils
	- (C) fatty acids
	- (D) hard soaps

- 112. Essential oils are usually obtained by
	- (A) solvent extraction
	- (B) extractive distillation
	- (C) steam distillation
	- (D) leaching

113. Top suspended basket centrifuges are used extensively in

- (A) plastic manufacture
- (B) petroleum refining
- (C) sugar refining
- (D) milk powder manufacture
- 114. The ratio of the diameters of the largest and smallest particles in a comminuted product is generally of the order of (D) leaching

op suspended basket centrifuges are used extensively in

(A) plastic manufacture

(B) petroleum refining

(C) sugar refining

(D) milk powder manufacture

he ratio of the diameters of the large st and malles (D) leaching

Top suspended basket entrifuges are used extensively in

(A) plastic minalifacture

(B) particular fictions

(D) sight entimating

(D) and the diameters of the largest and mallest particles in a comminuted p (A) solvent extraction

(B) extractive distillation

(C) steam distillation

(D) leaching

(A) plastic manufacture

(B) petroleum refining

(C) sugar refining

(D) milk powder manufacture

114 The ratio of the diameters o
	- (A) 10²
	- (B) 10^{10}
	- (C) 10⁶
	- (D) 10⁴

115. For a spherical particle of diameter (L_p) , the value of sphericity is

- $(A) 1.41$
- $(E \setminus 0.5)$
- (C) Ω
- (D) 1

116. Blake crushed is the common type of crusher

- \sum Jaw
- (B) gyratory
- (C) smooth roll
- (D) toothed roll
- 117. scale is only used for liquids with specific gravity greater than water. particle of diamete (L_p) , the value of sphericity is
since common type of common type of common contract and the common type of contract and roll
roll
only used for liquids with specific gravity greater than water.
	- (A) degree Baumme
	- (B) API
	- (C) Twaddell
	- (D) Brix
- 118. 1 torr pressure is equivalent to
	- (A) 1 Pascal
	- (B) 1 mmHg
	- (C) 1 bar
	- (D) 1 psi

119. One gm mole of ideal gas occupies a volume of at STP (A) 1 Pascal

(B) 1 mmHg

(C) 1 bar

(D) 1 psi

119. One gm mole of ideal gas occupies a volum

(A) 22.4 liters

(B) 1 m³

(C) 22.4 m³

(D) 22400 liter

120 The number of moles present in 32 gr is of c

(A) 1

(B) 8

- (A) 22.4 liters
- (B) 1 m^3
- (C) 22.4 m^3
- (D) 22400 liter

120. The number of moles present in 32 gm is of o. ygen is

- (A) 1
- (B) 8
- (C) 6.023×10^{23}
- (D) 2

121. The drag coefficient in hindered settling is _________ in free settling. CUSAT COMMON (b) 1 psi

One gm mole of ideal 2as occupies a volume of

(c) 22.4 litered

(f) 1 m²

(D) 22400 liter

(D) 223400 liter

The number of moles present in 32 g/s of o/ygen is

(A) 1 x 2400 liter

(D) 8

(C) 6.023 × 10³
 Common Anti-

an

an

an

an

un natic viscosity is

un natic viscosity is

f viscosity relates

gradient and fluid velocity

ation gradient and fluid velocity

ation gradient and rate of angular deformation

and Puid temp

- (A) g_r ater than
- (B) same as
- (C) lesser than
- (D) 0.01 times of $\frac{1}{2}$ rag coefficient
- 122. Dimension of kinematic viscosity is
	- (A) \lnot UT
	- \mathcal{L} $\frac{2}{1}$ ⁻¹
	- \overline{C} \mathbf{r}^2
	- $(D) L²T⁻²$
- 123. Newton's law of viscosity relates
	- (A) pressure gradient and fluid velocity
	- (B) concentration gradient and rate of angular deformation
	- (C) shear stress and velocity gradient
	- (D) viscosity and fluid temperature
- 124. Friction factor for a hydraulically smooth pipe at Reynolds number, $N_{Re} = 2100$ is f_1 . If the pipe is further smoothened (roughness is reduced) the friction factor at the same value of *NRe*, will the pipe is further smoothened (roughness is
of N_{Re} , will
(A) increase
(B) decrease
(C) remain unchanged
(D) increase or decrease depending on the
125. Air contains oxygen by mass
(A) 21%
(B) 79%
(C) 23%
(D) 77%
126
	- (A) increase
	- (B) decrease
	- (C) remain unchanged
	- (D) increase or decrease depending on the pipe material
	- 125. Air contains oxygen by mass
		- (A) 21%
		- (B) 79%
		- $(C) 23%$
		- (D) 77%

126. As the product becomes finer, the energy required for grinding (B) decrease

C) remain unchanged

C) increase or decrease depending on the pipe material

ir contains
 $\frac{21\%}{29\%}$

C) 23%

C) 23%

C) 23%

C) 77%

s the product becomes finer, the ene v required for arinding

A) dec

- (A) decreases
- (B) increases
- (C) is same as for coarse solid grinding
- (D) is 1.5 times the for coarse solid granding
- 127. Wheat is ground into flour in a
	- (A) harmer crusher
	- (B) roller crusher
	- (C) impact mill
	- (D) $\tilde{\mu}$ initial energy m.¹
- 128. Dittus Σ alter equation for heat transfer by forced convection in turbulent flow is

(B) decrease
\n(C) remain unchanged
\n(D) increase or decreasing depending on the pipe material
\nAir contains x
\n(A) 21%
\n(B) 79%
\n(C) 23%
\n(D) 77%
\nAs the product becomes finer, the end. xy required for finding
\n(A) decreases
\n(B) increases
\n(C) is same as for c or.rsc solid grinding
\n(D) is 1.5 times the, ' for co, 'se solid g. run...
\nWhat is grsum₁ into flour in a
\n(A) ha. "mer: rather
\n(B) (i) fluid energy in.
\n(D) fluid energy in.
\n20. 23 (DG)^{0.8}
$$
\left(\frac{C_P \mu}{\mu}\right)^{1/3} \left(\frac{\mu}{\mu}\right)^{0.14}
$$

\n21. 25. -16c equation for heat transfer by forced convection in turbulent flow is
\n $\sqrt{2}$, $\frac{h_1 D}{k} = 0.023 \left(\frac{DG}{\mu}\right)^{0.8} \left(\frac{C_P \mu}{k}\right)^{1/3}$
\n(C) $\frac{h_1 D}{k} = 0.023 \left(\frac{DG}{\mu}\right)^{0.8} \left(\frac{C_P \mu}{k}\right)^{1/3}$
\n(D) $h_1 = 0.0023 \left(\frac{Q^{0.8} \sqrt{8}}{\mu}\right)^{0.3} \left(\frac{C_P \mu}{k}\right)^{0.8}$

- 129. The unit of thermal conductivity is
	- (A) W/(m K)
	- (B) W/(gmole K)
	- (C) W/m² ^oK
	- (D) J/kg K

130. Emissivities are low for

- (A) oxidized metals
- (B) paints
- (C) non metals
- (D) polished metals

131. Ficks law statement is

- (A) (heat flux) α (temperature gradient)
- (B) (molar flux) α (concentration gradient)
- (C) (momentum flux) α (velocity gradient) (A) W/(m °K)

(B) W/(gmole °K)

(C) W/m² °K

(D) J/kg °K

(A) oxidized neetals

(B) paints

(C) non metals

(D) polished metals

(D) polished metals

(A) (heat flux) α (temperatur gradient)

(B) (molar flux) α (co
	- (D) (molar flux) α (pressure gradient)

132. Pressure of 0.001 absolute psi can be measured by ______ gauge. (b) J/kg examples are low for

(c) non metals

(c) spoished metals

(c) (monentum flux) α (chonespitant)

(c) (monentum flux) α (chocartation)

(D) (mo (D) J/kg K

Emissivities are low-for

(A) oxidized breaks

(B) paints

(D) painfied

(D) polished metals

(D) polished metals

(A) the diative at the pair of the CUSAT COMMON ADMISSION TEST ²⁰¹⁹

- (A) is rization
- (B) pirani
- (C) thermocouple
- (D) Mcleoid
- 133. In an adiabatic p_1 , ress the
	- (A) h at transfer is zero
	- (2) ten. cerature change is zero
	- $(V) \rightarrow$ ork done is infinite
	- (D) enthalpy remains constant
- 134. Second law of thermodynamics is concerned with the
	- (A) amount of energy transferred
	- (B) irreversible processes only
	- (C) non cyclic processes only
	- (D) direction of energy transfer

135. One ton of refrigeration capacity is equivalent to the heat removal rate of

- (A) 1 kcal/sec
- (B) 200 BTU/hr
- (C) 200 BTU/day
- (D) 200 B TU/min

136. For transportation of materials which are lumpy, abrasive and hot we use (D) 200 B TU/min

or transportation of materials which are lumpy, abrasive and he we use

(A) belt conveyor

(B) apror conveyor

(C) either (A) or (B)

(D) None of the above

(A) diesel oil

(B) naphta

(C) gasoline

(D) g

- (A) belt conveyor
- (B) apron conveyor
- (C) either (A) or (B)
- (D) None of the above

137. Octane number is a measure of anti-l nock μ operties of (A) 1 kcal/sec

(B) 200 BTU/hr

(C) 200 BTU/hay

(D) 200 B TU/min

136. For transportation of materials which are lur

(A) belt conveyor

(B) apron conveyor

(C) either (A) or (B)

(D) None of the above

137. Octane numbe

- (A) diesel oil
- (B) naphtha
- (C) gasoline
- (D) jet fuel

138. Titanium dioxide is a pigment of colour

- (A) b¹ ie
- (B) black
- (C) yellow
- (D) white

139. For precise $\text{Con}(\mathcal{A})$ of fluid flow rate the best performance is obtained by (D) 200 B TU/min

For transportation of frasterials which are lumpy, abrasive and he we use

(A) belt conveyor

(B) appears conveyor

(D) stime of the above

(D) stime is a measure of anti-1 mock c operties of

(A) diescl Re is a p'gment of c (lour)

of fluid flow rate the best performance is chained by

the

the

the above

used to

condensate

the above

the above

the above

- (A) ate valve
- (B) check valve
- (2) $\sqrt{10}$ be valve
- (D) None of the above
- 140. Steam traps are used to
	- (A) remove condensate
	- (B) remove liquid from vapour
	- (C) regulate pressure
	- (D) None of the above
- 141. Preheating of food into an evaporator
	- (A) reduces economy
	- (B) increases the heat transfer are
	- (C) decreases the heat transfer are
	- (D) requires higher pressure for operation

142. To extract oil from oil seeds the following equipment is used (b) requires higher pressure for operation

o extract oil from oil seeds the following equipment is used

(A) centrifugal extractor

(B) Bollman extractor

(C) pulse column

(D) packed column

(C) Tuid bed drier

(D) spout (D) requires higher pressure for operation

To extract oil from oil seeds the following equipment is uses

(A) centrifugal extractor

(B) Bollman extractor

(D) prise column

(D) prise column

Siteky material is dried in (A) reduces economy

(B) increases the heat transfer are

(C) decreases the heat transfer are

(D) requires higher pressure for operation

142. To extract oil from oil seeds the following e

(A) centrifugal extractor

(B)

- (A) centrifugal extractor
- (B) Bollman extractor
- (C) pulse column
- (D) packed column

143. Sticky material is dried in a

- (A) tray drier
- (B) rotary drier
- (C) fluid bed drier
- (D) spouted bed drier
- 144. Unit of fugacity is
	- (A) at n./mol?
	- (B) atm.
	- (C) atm/ \mathbb{R} K
	- (D) None of the a, α
- 145. For a spontaneous process, \circ G is
	- (A) negative
	- (2) zero
	- (V) positive
	- (D) None of the above
- 146. The most suitable reactor for autocatalytic reaction is the a. over
the a. over
www. process, °G is
the above
ple reactor for autocatalytic reaction is
veactor
a scries
	- (A) plug flow
	- (B) CSTR
	- (C) recycle reactor
	- (D) CSTRs in series

147. For prevention of fluid leakage around moving ports, normal device used is

- (A) stuffing box
- (B) bellow
- (C) packless joint
- (D) expansion loop

148. Gas oil is converted to gasoline by the process of

- (A) stabilization
- (B) cracking
- (C) coking
- (D) isomerisation

149. Long-tube vertical evaporators have ϵ scellent performance for Expansion loop

is converted to gasoline by the process of

stabilization

cracking

comerisation

ube vertical evaporators have cyceller reformance for

viscous liquor

staling liquor

coling liquor

e contre l m. ns

exe (D) expansion loop

Gas oil is converted to gasoline by the process of

(A) stabilization

(B) cracking

(D) comersation

Long-tube vertical evaporators have exceller performance for

(A) of signing liquor

(C) sating liq (A) stuffing box

(B) bellow

(C) packless joint

(D) expansion loop

(A) stabilization

(B) cracking

(C) coking

(D) disconsition

(B) scaling liquor

(B) scaling liquor

(B) scaling liquor

(C) soling liquor

(B) scali

- (A) viscous liquor
- (B) scaling liquor
- (C) salting liquor
- (D) foamy liquor

150. Cascade control many ns.

- (A) c_1 e feed back and one feed λ ward CUSAT COMMON ADMISSION TEST ²⁰¹⁹
- (B) two feed forward
- (C) two feed backs rr . e (B) two \Im ord forward

(C) two feed backs \Im Γ

(D) Ngne of the a ove
-

