PROVISIONAL ANSWER KEY

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Exam:	Chemical Inspector/Technical Assistant (Chemical)
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Question1:-The temperature in Fahrenheit scale corresponding to 253 K

A:--4°F

B:-4°F

C:-12°F

D:-36°F

Correct Answer:- Option-A

Question2:-A gas is confined in a cylinder by a piston. The initial pressure of the gas is 7 bar and the volume is 0.1 m^3 . The piston is held in place by latches in the cylinder wall. The whole apparatus is placed in a total vacuum. What can you say about the energy change of the apparatus if the retaining latches are removed so that the gas suddenly expands to double its volume?

A:-Increases

B:-Decreases

C:-Remain unchanged

D:-Cannot be predicted with the given data

Correct Answer:- Option-C

Question3:-From the following list, identify the properties which are equal in both vapour and liquid phases at equilibrium

P. Density
Q. Temperature
R. Chemical potential
S. Enthalpy

A:-P and Q only

B:-Q and R only

C:-R and S only

D:-P and S only

Correct Answer:- Option-B

Question4:-A gas obeying van der Waal's equation (Cv = 2/3 R) is expanded isothermally to double its original volume. After the expansion the value of Cv will be

A:-4/3 R

B:-7/3 R

C:-2/3 R

D:-1/2 R

Correct Answer:- Option-C

Question5:-At a given temperature and pressure, a liquid mixture of benzene and toluene is in equilibrium with its vapor. The available degrees of freedom are

A:-0

B:-1

C:-2

D:-3

Correct Answer:- Option-C

Question6:-For a pure liquid, the rate of change of vapor pressure with temperature is 0.1 bar/K in the temperature range of 300 to 350 K. If the boiling point of the liquid at 2 bar is 320 K, the temperature (in K) at which it will boil at 1 bar is

A:-310

B:-320

C:-380

D:-390

Correct Answer:- Option-A

Question7:-At constant temperature and pressure the molar density of a binary mixture is given by $S = 1 + x_2$ where x_2 is the mole fraction of the component 2. The partial molar volume at infinite dilution for component 1, $V_{1\infty}$

A:-12

B:-4

C:-0.25

D:-0.75

Correct Answer:- Option-D

Question8:-Which among the following equation is associated with second law of thermodynamics

A:-dQ = dU + dW

B:-dU = dQ + pdv

C:-dQ = TdS

D:-dS = TdQ

Correct Answer:- Option-C

Question9:-For liquids the volume expansivity (β) is equal to

A:-$\left(\frac{\partial V}{\partial T}\right)_P$

B:-$\frac{1}{V}\left(\frac{\partial V}{\partial T}\right)_P$

C:-$-\frac{1}{V}\left(\frac{\partial V}{\partial T}\right)_P$

D:-$\frac{1}{V}\left(\frac{\partial T}{\partial V}\right)_P$

Correct Answer:- Option-B

Question10:-All gases, when compared at the same reduced temperature and reduced pressure, deviates from the ideal gas behaviour to about the same degree. This concept is called

A:-Ideal gas law

B:-Theorem of relativity

C:-Theorem of correspondence states

D:-Virial equation

Correct Answer:- Option-C

Question11:-A pump is located between two stations a an b in a chemical plant. In the entire pumping system, the loss due to friction is estimated as 10 ft. lbf/lb. If work done by the pump is 100 ft. lbf/lb, estimate the pump efficiency

A:-50%

B:-45%

C:-90%

D:-10%

Correct Answer:- Option-C

Question12:-The discharge pressure shown by a pressure gauge in the outlet of the pump is 3 atm. Then the respective absolute pressure at the pump outlet will be

A:-4 atm

B:-2 atm

C:-1 atm

D:-0 atm

Correct Answer:- Option-A

Question13:-Bernoulli's equation without friction is

A:-$P=P_0+\rho gZ$

B:-$\frac{P_a}{\rho}+\frac{v_a^2}{2}+gZ_a+h_f=\frac{P_b}{\rho}+\frac{v_b^2}{2}$

C:-$P_a-P_b=gZ$

D:-$\frac{P_a}{\rho}+\frac{v_a^2}{2}+gZ_a=\frac{P_b}{\rho}+\frac{v_b^2}{2}+gZ_b$

Correct Answer:- Option-D

Question14:-An oil with a specific gravity of 0.887 flows through the pipe is 30 ft^3 /min. The mass flow rate of the oil in the pipe is _____ lb/h. (Take a density of reference i.e. water = 1000 kg/m^3)

A:-7354.74

B:-99675.74

C:-98649.26

D:-5473.26

Correct Answer:- Option-B

Question15:-The SI unit of viscosity is

A:-Pa/s^2

B:-N.s

C:-Kg/(m.s)

D:-kg.s/m

Correct Answer:- Option-C

Question16:-Friction factor for turbulent flow in a hydraulically smooth pipe

A:-depends only on N_{Re}

B:-does not depend on N_{Re}

C:-depends only on roughness

D:-depends on N_{Re} and roughness

Correct Answer:- Option-A

Question17:-Which of the following is the Hagen - Poiseulle equation?

A:-$\Delta P = 4.f.\frac{L}{D}.\frac{V^2}{2g_c}$

B:-$\Delta P = 32.f.\frac{D}{L}.\frac{V^2}{2g_c}$

C:-$\Delta P = 32\frac{\mu LV}{g_c D^3}$

D:-$\Delta P = 32\frac{\mu LV}{g_c D^2}$

Correct Answer:- Option-D

Question18:-Net Positive Suction Head (NPSH) of a centrifugal pump must be

A:-less than vapour pressure of liquid

B:-less than std. atm pressure

C:-greater than vapour pressure of liquid

D:-equal to boiling point

Correct Answer:- Option-C

Question19:-A pipe of particular dimension with schedule number 80 is _____ the pipe of same dimension with schedule number 40.

A:-having higher thickness than

B:-having lower thickness than

C:-having equal thickness with

D:-having equal weight with

Correct Answer:- Option-A

Question20:-A tank has a water (specific gravity=1) of 10 m high in a circular tank of 2 inch diameter. The top of the tank is opened and top surface of water is exposed to atmospheric air of 1 atm. What is pressure at the mid of the water level in the tank (i.e. at 5 m height)?

A:-1 atm

B:-2.8 atm

C:-1.48 atm

D:-1.21 atm

Correct Answer:- Option-C

Question21:-For the same volume, a cube does have _____ times more surface area compared to a sphere.

A:-1.85

B:-0.8130

C:-1.23

D:-2

Correct Answer:- Option-C

Question22:-The work index of Bond's law is a measure of :

A:-Energy required to fracture one unit mass of solid

B:-Surface energy of particles

C:-Grindability of a material under standard test conditions

D:-Crushing capacity of an ore

Correct Answer:- Option-C

Question23:-For smooth roll crushers, the angle of nip typically ranges from

A:-6° to 14°

B:-16° to 24°

C:-26° to 34°

D:-36° to 44°

Correct Answer:- Option-B

Question24:-Which one of the following statements in NOT true?

A:-Axial flow impellers impose shear stress to the fluid, and are used to mix immiscible liquids

B:-For very high viscous liquids, the most widely used impellers are Helical impellers and Anchor agitators

C:-Propellers and Turbines are used for low to moderate viscosity liquids

D:-Propeller agitators are effective in very large vessels

Correct Answer:- Option-A

Question25:-The formation of nuclei occurs in the presence of solid surfaces (such as the wall of container or pipe) other than those of crystals in the magma is known as

A:-Homogeneous nucleation

B:-Secondary nucleation

C:-Heterogeneous nucleation

D:-Contact nucleation

Correct Answer:- Option-C

Question26:-Which one of the following state is FALSE?
In case of compressible cakes :

A:-Particles are soft or deformable

B:-Filtration pressure is high

C:-Slurry contains fine or cohesive particles

D:-Compressibility index is zero

Correct Answer:- Option-D

Question27:-Which of the following mixer is used for free-flowing solids?

A:-Ribbon blender

B:-Masticator

C:-Muller mixer

D:-Pug Mill

Correct Answer:- Option-A

Question28:-The maximum safe angle at which free-flowing bulk solids can be stored in a conical heap without collapsing is known as

A:-Angle of repose

B:-Angle of internal friction

C:-Surge angle

D:-Surcharge angle

Correct Answer:- Option-A

Question29:-Thermal contact resistance of an interface depends on

A:-Surface roughness and material properties

B:-Temperature and pressure at the interface

C:-Type of fluid trapped at the interface

D:-All of the above 1, 2, 3

Correct Answer:- Option-D

Question30:-The dimensionless group that compares rate of heat transfer by bulk flow and conduction

A:-Stanton Number

B:-Peclet Number

C:-Prandtl Number

D:-Nusselt Number

Correct Answer:- Option-B

Question31:-Which of the following two statements are/is correct?

Statement 1 : If a bubble nucleus is formed in the bulk of a superheated liquid, it is called homogeneous nucleation.
Statement 2 : If a nucleus is formed on a hot surface or on a solid particle suspended in the superheated liquid, it is called heterogeneous nucleation.

A:-Both statements 1 and 2 are correct

B:-Both statements 1 and 2 are wrong

C:-Statement 1 is correct and Statement 2 is wrong

D:-Statement 2 is correct and Statement 1 is wrong

Correct Answer:- Option-A

Question32:-Which of the following is not true for a black body?

A:-Black body is a perfectly diffuse emitter of radiation

B:-Black body is a perfect absorber of radiation

C:-Black body is a perfect emitter of radiation

D:-Spectral black body emissive power is given by Stefan- Boltzmann law

Correct Answer:- Option-D

Question33:-Suggest the most suitable heat exchanger for milk chilling and pasteurization in a diary plant

A:-Finned tube

B:-Double pipe

C:-Cooling Coil

D:-Plate Heat Exchanger

Correct Answer:- Option-D

Question34:-The cross sectional area of downtake generally varies from _____ of the flow area of tubes in a short tube vertical evaporator.

A:-50 to 100%

B:-10 to 20%

C:-1 to 2%

D:-0.1 to 1%

Correct Answer:- Option-A

Question35:-Under which condition can a double pipe heat exchanger replace a shell and tube heat exchanger?

A:-For large duties

B:-When shell side film coefficient is high

C:-For high pressure duties

D:-None of the above (1, 2, 3)

Correct Answer:- Option-C

Question36:-Under which condition LMTD is not the correct mean temperature difference to use?

A:-When overall heat transfer coefficient changes appreciably

B:-When overall local temperature difference is not a linear function

C:-When heat is transferred to or from a reacting fluid in a jacketed reactor

D:-All of the above (1, 2 and 3)

Correct Answer:- Option-D

Question37:-Economy of an evaporator system depends on

A:-Number of effects only

B:-Temperature of feed only

C:-Both number of effects and temperature of feed

D:-None of the above (1, 2, 3)

Correct Answer:- Option-C

Question38:-The total radiation that leaves a surface per unit area per unit time is called

A:-radiosity

B:-irradiation

C:-view factor

D:-spectral intensity

Correct Answer:- Option-A

Question39:-The value of $\frac{N_A}{N_A+N_B}$, for steady state equimolar counter diffusion of two gases 'A' and 'B' is

A:-1

B:-2

C:-0.5

D:-∞

Correct Answer:- Option-D

Question40:-For absorbing a sparingly soluble gas in a liquid, mass transfer rate can be increased by

A:-Increasing the liquid side mass transfer coefficient

B:-Increasing the gas side mass transfer coefficient

C:-Keeping the mass transfer coefficients constant

D:-Decreasing the liquid side mass transfer coefficient

Correct Answer:- Option-A

Question41:-In a cooling tower, the 'wet bulb temperature approach' is defined as the difference between the

A:-dry-bulb and wet-bulb temperature of the incoming air

B:-temperature of inlet water and inlet air

C:-wet-bulb temperature of inlet air and the exit water temperature

D:-wet-bulb temperature of exit air and inlet water temperature

Correct Answer:- Option-C

Question42:-One hundred kg each of a solid feed containing 20% solute and 80% insoluble inerts is subjected to single stage leaching using one hundred kg of a pure solvent. After settling, 80 kg of clear solution is withdrawn as overflow. What is the inert to solution weight ratio in the underflow?

A:-0.5

B:-2

C:-0.67

D:-0.57

Correct Answer:- Option-B

Question43:-A packed distillation column, with vapour having an average molecular weight of 45 kg.mol-1 density of 2 kg.m^{-3} and a molar flow rate of 0.1 kmol.s^{-1} , has a flooding velocity of 0.15$m.s^{-1}$ The column is designed to operate at 60% of the flooding velocity. Which one of the following is the CORRECT value for the column diameter (in m)?

A:-$\sqrt[10]{\prod}$

B:-$\frac{10}{\sqrt{\prod}}$

C:-$\sqrt[5]{\prod}$

D:-$\frac{5}{\sqrt{\prod}}$

Correct Answer:- Option-B

Question44:-For a fixed degree of absorption by a fixed amount of solvent, with increase in gas rate, the number of transfer units N_{tOG}

A:-increases

B:-decreases

C:-remain unaffected

D:-decreases linearly

Correct Answer:- Option-A

Question45:-Which one of the following is a favourable condition for the formation of an ideal break through curve?

A:-Small bed height

B:-The internal and external resistance to mass transfer are significant

C:-The fluid flow is turbulent

D:-Axial dispersion is negligible

Correct Answer:- Option-D

Question46:-500 kg feed containing 40% C is extracted with 400 kg of pure solvent B. 600 kg extract is formed analysing 25% C. The distribution coefficient corresponding to this concentration is

A:-0.25

B:-0.67

C:-1.25

D:-1.5

Correct Answer:- Option-D

Question47:-Increasing the reflux ratio

A:-decreases the reboiler load

B:-increases the number of plates

C:-increases the vapour boil-up

D:-decreases the vapour boil-up

Correct Answer:- Option-C

Question48:-The number degrees of freedom for an azeotropic mixture in a two-component vapour -liquid equilibria is/are

A:-Zero

B:-One

C:-Two

D:-Three

Correct Answer:- Option-B

Question49:-Reaction with high activation energy are

A:-Highly temperature sensitive

B:-Temperature in sensitive

C:-Always reversible

D:-Always irreversible

Correct Answer:- Option-A

Question50:-A mixture of 20% SO_2 and 80% air is charged to a variable volume batch reactor at constant temperature and pressure in which SO_2 is oxidised.

$2SO_2+O_2 \rightarrow 2SO_3$

The number of moles of SO_3 produced per 100 moles of feed at 80% conversion of SO_2 is

A:-13.3

B:-6.7

C:-12.8

D:-16

Correct Answer:- Option-A

Question51:-The half-life of a first order liquid phase reaction is 30 minutes. Then the rate constant in $hour^{-1}$ is

A:-0.0231

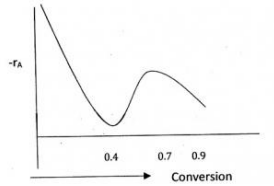
B:-1.386

C:-0.693

D:-2

Correct Answer:- Option-B

Question52:-A liquid-phase reaction is to be carried out under isothermal conditions. The reaction rate as a function of conversion has been determined experimentally and is shown in the following figure. What choice of reactor or combination of reactors will require the minimum overall reactor volume, if a conversion of 0.9 is desired?



A:-CSTR followed by a PFR

B:-CSTR followed by a PFR, followed by a CSTR

C:-PFR followed by a CSTR

D:-PFR followed by a CSTR, followed by a PFR

Correct Answer:- Option-D

Question53:-A first order liquid phase reaction is taking place in two equal sized CSTRs connected in series. If the conversion from the first reactor is 40%, then the conversion from the second reactor is

A:-50

B:-64

C:-84

D:-100

Correct Answer:- Option-B

Question54:-For a series of reaction $A \xrightarrow{k_1} B \xrightarrow{k_2} C$ having $k_1 \prec\prec k_2$, the reaction system can be approximated as

A:-$A \xrightarrow{k_1} B$

B:-$A \xrightarrow{k_2} B$

C:-$A \xrightarrow{k_1} C$

D:-$A \xrightarrow{k_2} C$

Correct Answer:- Option-C

Question55:-For the liquid phase parallel reactions

$$\begin{matrix} A \xrightarrow{1} R \\ A \xrightarrow{2} S \end{matrix} \quad \begin{cases} -r_A = k_1 C_A^2 + k_2 C_A, & E_1 = 120 \text{ kJ/mol} \\ r_R = k_1 C_A^2, & E_2 = 80 \text{ kJ/mol} \\ r_S = k_2 C_A \end{cases}$$

The desire product is R. A higher selectivity of R will be achieved if the reaction is conducted at

A:-Low temperature in a CSTR

B:-High temperature in a CSTR

C:-Low temperature in a PFR

D:-High temperature in a PFR

Correct Answer:- Option-D

Question56:-A pulse tracer is introduced in an ideal CSTR (with a mean residence time τ) at time = 0. Determine the time taken for the exit concentration of the tracer to reach half of its initial value.

A:-2 τ

B:-τ/0.693

C:-0.5 τ

D:-0.693 τ

Correct Answer:- Option-D

Question57:-The substrate limiting microbial reaction, $(A \xrightarrow{C} R+C)$, is taking place with less food or very low substrate concentration. The rate constant (k_{obs}) and order (n) of this reaction are, respectively.

A:-$k_{obs}=\frac{k}{C_M};n=2$

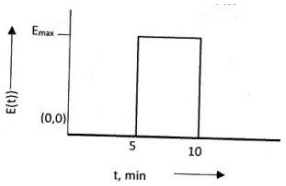
B:-$k_{obs}=k;n=2$

C:-$k_{obs}=\frac{k}{C_M};n=1$

D:-$k_{obs}=k;n=1$

Correct Answer:- Option-A

Question58:-An isothermal pulse test is conducted on a reactor and the variation of the outlet tracer concentration with time is shown below:



The mean residence time of fluid in reactor (in min) is

A:-5

B:-7.5

C:-10

D:-15

Correct Answer:- Option-B

Question59:-Error calibration means that an industrial instrument has been especially calibrated.

A:-to determine the static error while varying the input rapidly to capture the dynamic behaviour of the instrument

B:-once at the zero point and the same error is assumed across the scale

C:-against a suitable standard and its static error determined at a number of points of its scale

D:-at the maximum scale value of the instrument

Correct Answer:- Option-C

Question60:-One of the desirable properties of thermocouples for industrial use is

A:-Relatively large thermal emf

B:-Low resistance to corrosion or oxidation

C:-Slow response time

D:-High susceptibility to electromagnetic interference (EMI)

Correct Answer:- Option-A

Question61:-Which of the following effects must be considered when using radiation receivers in a radiation pyrometer?

A:-Reference - junction temperature effect, distance effect, absorbing - media effect and emissivity effect

B:-Only the ambient air temperature and power supply stability

C:-Wind speed, barometric pressure, and sample colour only

D:-Length of thermocouple wire and type of insulation used

Correct Answer:- Option-A

Question62:-A convenient unit for expressing very low absolute pressures is the micron.

A:-A micron is the same as 1 atmosphere of pressure at standard temperature

B:-A micron is 0.001 mm of mercury column absolute pressure at 32°F

C:-A micron is 1 mm of mercury column absolute pressure at 32°F

D:-A micron is 0.001 cm of mercury column absolute pressure at 32°F

Correct Answer:- Option-B

Question63:-Diaphragm - Box system is for

A:-Temperature measurements

B:-Humidity measurements

C:-pH levels in liquids

D:-Liquid-level measurements

Correct Answer:- Option-D

Question64:-The first order processes are characterized by
i. Their capacity to store material, energy or momentum.
ii. The resistance associated with the flow of mass, energy or momentum in reaching the capacity.
iii. Their ability to instantaneously reach equilibrium without any time lag.

A:-Only ii and iii

B:-All the above

C:-Only i and ii

D:-Only i and iii

Correct Answer:- Option-C

Question65:-Which of the following best explains how a second-order system commonly arises in chemical engineering applications?

A:-When two inherently second-order physical systems are operated in isolation

B:-When a controller is added to a first order process

C:-When two second-order systems are connected in parallel

D:-When a steady-state process is subjected to constant input

Correct Answer:- Option-B

Question66:-In a single-loop feedback control system, the overall transfer function for a change in set point C/R is given by :

A:-$\frac{G_C G_1 G_2}{1+G_C G_1 G_2 H}$

B:-$\frac{G_2 H}{1+G_C G_1 G_2 H}$

C:-$\frac{G_C G_1}{1+G_C G_1 G_2 H}$

D:-$\frac{H}{1+G_C G_1 G_2 H}$

Correct Answer:- Option-A

Question67:-The Routh-Hurwitz criterion determines stability based on:

A:-The eigen values of the A matrix

B:-The location of zeros of the transfer function

C:-The number of sign changes in the first column of the Routh array

D:-The frequency response of the system

Correct Answer:- Option-C

Question68:-In a cascade control system, why is a proporational (P) controller commonly used for the secondary loop?

A:-Because it eliminates offset in the secondary output

B:-Because the secondary loop is slower and requires integral action

C:-Because precise control of the secondary output is critical

D:-Because fast disturbance rejection is the main goal, and offset in the secondary loop is not critical

Correct Answer:- Option-D

Question69:-What is the unit of measuring radiation exposure, defined as the energy flux of unperturbed photon radiation?

A:-Absorbed dose

B:-Roentgen

C:-Gray

D:-Rad

Correct Answer:- Option-B

Question70:-How do you define the term 'solar constant'?

A:-Amount of energy received per unit time per unit area perpendicular to the sun's direction

B:-Constant by which solar energy scattering is calculated

C:-Constant value by which solar energy radiating back to the atmosphere is calculated

D:-Solar energy per unit mass

Correct Answer:- Option-A

Question71:-A surface coating helps to increase the absorption of a solar energy collected _____ is a good coating material.

A:-White chrome

B:-White titanium

C:-Black chrome

D:-Black titanium

Correct Answer:- Option-C

Question72:-One of the major components of biomass is cellulose. What is cellulose?

A:-An inorganic crystalline mineral

B:-The fluid matter present in the biomass

C:-A homopolysaccharide of glucose

D:-A macronutrient present in plants

Correct Answer:- Option-C

Question73:-Turbidity of water can be managed by using coagulants such as

A:-Ferric sulphate

B:-Ferrous sulfate

C:-Nickel sulfate

D:-Nickel oxide

Correct Answer:- Option-A

Question74:-The BOD test is carried out in a wastewater sample by measuring the

A:-Dissolved organic matter

B:-Dissolved nitrogen

C:-Dissolved oxygen

D:-Dissolved carbon dioxide

Correct Answer:- Option-C

Question75:-The following method is one of the means of removing ammonia from wastewater

A:-Ultraviolet radiation

B:-Sedimentation

C:-Nitrification denitrification

D:-None of the above

Correct Answer:- Option-C

Question76:-High levels of which of the following pollutants result in effects such as headache, poor coordination visual and speech disturbances, coma and even death?

A:-Carbon monoxide

B:-Ozone

C:-Particulate matter

D:-Nitrogen dioxide

Correct Answer:- Option-A

Question77:-When a flammable liquid is spilled onto water and ignited, the type of fire is called?

A:-Fireball

B:-Pool fire

C:-Flash fire

D:-Jet fire

Correct Answer:- Option-B

Question78:-Which of the following definition best fits the term hazard?

A:-Property protection against threats or incursions

B:-A situation that has the potential to cause harm to humans, the environment and property

C:-Measure of loss potential and damage to the surroundings

D:-None of the above

Correct Answer:- Option-B

Question79:-which type of fire extinguisher is used for putting out electrical fires?

A:-Class A

B:-Class B

C:-Class C

D:-Class D

Correct Answer:- Option-C

Question80:-The full form of UVCE in the context of safety in chemical industries is

A:-UV heated chemical evaporation

B:-Unvaporized chemical explosion

C:-Unconfined vapour cloud explosion

D:-Unverified chemical evaporation

Correct Answer:- Option-C

Question81:-Which of the following is used as promoter for pure vanadium pentoxide during the manufacture of sulphuric acid?

A:-Silica

B:-Potassium

C:-Sulphur

D:-Alumina

Correct Answer:- Option-B

Question82:-Which among the following are not considered as raw materials for manufacture of phosphoric acid?

A:-Concentrated sulphuric acid and phosphate rock

B:-Hydrogen chloride gas and phosphate rock

C:-Crushed phosphate rock, coke and sand

D:-Concentrated nitric acid and phosphate rock

Correct Answer:- Option-D

Question83:-In LeBlanc process for the manufacture of soda ash, the raw materials are

A:-Sodium sulphate and limestone

B:-Sodium Sulphite and limestone

C:-Sodium Nitrate and Limestone

D:-Ammonia and Sodium chloride

Correct Answer:- Option-A

Question84:-What is the primary goal of Kraft pulping process?

A:-To extract cellulose from wood

B:-To recover chemicals from black liquor

C:-To separate lignin from cellulose

D:-To bleach the pulp

Correct Answer:- Option-C

Question85:-Aniline point test of an oil qualitatively indicates the _____ content of an oil.

A:-Paraffin

B:-Olefin

C:-Aromatic

D:-Naphthene

Correct Answer:- Option-C

Question86:-What is the main aim of desalting crude oil?

A:-To remove water and sediment

B:-To increase the octane number of the fuel

C:-To remove sulphur compounds

D:-To prevent corrosion in refining equipment

Correct Answer:- Option-D

Question87:-Temperature range in all catalytic cracking operations lies in the range of

A:-100-370 °C

B:-200-410 °C

C:-310-450 °C

D:-450-510 °C

Correct Answer:- Option-D

Question88:-The main reaction in the reforming is

A:-Hydrogenation of napthenes

B:-Dehydrogenation of naphthenes

C:-Hydrocracking of paraffins

D:-Saturation of olefins

Correct Answer:- Option-B

Question89:-Which of the following is not used for alkylation processes?

A:-Sulphuric acid

B:-Hydrofluoric acid

C:-Hydrochloric acid

D:-Aluminium chloride

Correct Answer:- Option-C

Question90:-What are the monomers used in the production of Nylon-6,6?

A:-Adipic acid and Caprolactum

B:-Adipic acid and Hexamethylene diamine

C:-Hexamethylene diamine and Caprolactum

D:-Dimethyl terephthalate and Caprolactum

Correct Answer:- Option-B

Question91:-The inventory of raw materials that forms part of the working capital typically represents approximately _____ months' worth of raw materials, assessed at delivery prices.

A:-Three

B:-Twelve

C:-One

D:-Six

Correct Answer:- Option-C

Question92:-Among the options presented, the depreciation calculation using the _____ method yields the highest value.

A:-Straight line

B:-Diminishing balance

C:-Sinking fund

D:-Sum of the years digit

Correct Answer:- Option-B

Question93:-The fixed charges associated with a chemical plant do not encompass the

A:-Repair and maintenance charges

B:-Insurance and depreciation

C:-Rent of buildings

D:-Interest on borrowed capital

Correct Answer:- Option-D

Question94:-What is the anticipated return on investment for a project involving an investment of Rs. 30 lakhs, which generates annual savings of Rs. 10.5 lakhs and incurs annual operating cost of Rs. 1.5 lakhs?

A:-30 percent

B:-40 percent

C:-10 percent

D:-35 percent

Correct Answer:- Option-A

Question95:-The difference between the maximum time allotted and the actual time required to complete a task in a project is referred to as

A:-Free float

B:-Total float

C:-Half float

D:-Independent float

Correct Answer:- Option-B

Question96:-Which of the following does not constitute an objective of financial statements?

A:-To ascertain income tax liability

B:-To demonstrate the operating efficiency of the company

C:-To assess the effectiveness of management

D:-To illustrate the financial position of the company

Correct Answer:- Option-A

Question97:-The collection of all products and items that a specific seller provides

for sale is referred to as

A:-Product system

B:-Product hierarchy

C:-Product mix

D:-Product line

Correct Answer:- Option-C

Question98:-Which of the following financial analysis methods is employed to assess the profitability of a project?

A:-Payback period

B:-Internal Rate of Return (IRR)

C:-Net Present Value (NPV)

D:-All of the above

Correct Answer:- Option-D

Question99:-Which of these layouts is the most appropriate for the processing of sugar derived from sugar beets or sugar cane?

A:-Process-oriented layout

B:-Fixed-position layout

C:-Focused factory

D:-Product-oriented layout

Correct Answer:- Option-A

Question100:-Cost of utilities in the operations of a chemical plant comes under the

A:-General expenses

B:-Direct production cost

C:-Plant overhead cost

D:-Fixed charges

Correct Answer:- Option-B