FINAL ANSWER KEY

Question1:-The pressure drop in pumping water at 30°C (viscosity = 1 cP) through a pipe of 5 cm diameter through a distance of 100 m at a velocity 0.002 m/s is

A:-2.56 Pa

B:-25.6 Pa

C:-256 Pa

D:-0.256 Pa

Correct Answer:- Option-A

Question2:-If the pressure measurement in a vessel gives a reading of 690 mm Hg, where the barometer reads 755 mm Hg, the pressure reading is reported as

A:-690 mm Hg vacuum

B:-70 mm Hg vacuum

C:-5 mm Hg vacuum

D:-65 mm Hg vacuum

Correct Answer:- Option-D

Question3:-An inclined manometer is used to measure the pressure difference ΔP between fluids A and B. The angle of inclination of the manometric tube with the horizontal is θ. The length of inclined column showing the difference in pressure between the two limbs is R. If ρ_A and ρ_B are the densities of A and B, $\Delta P = P_A - P_B$ is given by,

A:-$R_{(\rho_A - \rho_B)g}$

B:-$R \sin\theta \ _{(\rho_A - \rho_B)g}$

C:-$R \cos\theta \ _{(\rho_A - \rho_B)g}$

D:-$R \tan\theta \ _{(\rho_A - \rho_B)g}$

Correct Answer:- Option-B

Question4:-A Newtonian liquid (ρ = Density, μ= viscosity) is flowing through a pipe of diameter D with a velocity v. If ΔP is the pressure drop across a length of pipe L, for laminar flow, ΔP is proportional to

A:-$L\mu v/D^2$

B:-$L\rho v^2 /D$

C:-$L\rho v/D$

D:-$L\rho D/v^2$

Correct Answer:- Option-A

Question5:-Liquid A flows through a pipe under laminar flow. Liquid B flows through another pipe of same diameter under turbulent flow. The average flow velocity for turbulent flow is 0.86 times the centre line velocity. For having equal volumetric flow rates, the ratio of maximum velocities, $V_{max,A}/V_{max,B}$ is

A:-0.43

B:-0.86

C:-1.72

D:-2.0

Correct Answer:- Option-C

Question6:-Match the following.

I	II
J. Ideal fluid	P. Velocity profile flattens
K. Turbulent flow	Q. Flow in layers
L. Laminar flow	R. Velocity profile developing
M. Entrance length	S. Potential flow

A:-J-Q, K-R, L-S, M-P

B:-J-Q, K-P, L-S, M-R

C:-J-S, K-P, L-Q, M-R

D:-J-S, K-R, L-Q, M-P

Correct Answer:- Option-C

Question7:-In a centrifugal pump, cavitation occurs when the pressure at the impeller eye becomes

A:-less than atmospheric pressure

B:-more than atmospheric pressure

C:-more than the liquid vapour pressure

D:-less than the liquid vapour pressure

Correct Answer:- Option-D

Question8:-Choose the correct values of fanning friction factor f :
Through a galvanized iron pipe (k/D = 0.0005) water flows with a Reynolds number of 100 and through another pipe of same diameter and roughness, water flows with a Reynolds number of 10^6. The f values are

A:-0.016 and 0.045

B:-0.016 and 0.0045

C:-0.16 and 0.045

D:-0.16 and 0.0045

Correct Answer:- Option-D

Question9:-Match the following.

	I		II
P.	Globe valve	1.	Unidirectional flow
Q.	Gate valve	2.	Protect pump from excessive pressure
R.	Relief valve	3.	Quick open
S.	Check valve	4.	Flow control

A:-P-4, Q-3, R-2, S-1

B:-P-3, Q-4, R-2, S-1

C:-P-4, Q-2, R-3, S-1

D:-P-3, Q-4, R-1, S-2

Correct Answer:-Question Cancelled

Question10:-Which of the following combination of the flow pattern can be observed in an open turbine ?

A:-Axial only

B:-Radial only

C:-Mixed flow

D:-Radial and axial

Correct Answer:- Option-D

Question11:-The terminal settling velocity of a spherical particle in gravitational settling under Stoke's law regime

A:-Varies linearly with the particle diameter

B:-Varies linearly with the fluid viscosity

C:-Varies directly with the square particle diameter

D:-Varies inversely with the particle density

Correct Answer:- Option-C

Question12:-Bond's crushing law states that, the work required to form a product of specified size from a very large size feed is proportional to

A:-square root of surface to volume ratio of product

B:-square root of surface to volume ratio of feed

C:-square of surface to volume ratio of product

D:-square of surface to volume ratio of feed

Correct Answer:- Option-A

Question13:-Which of the following is most suitable for transportation of sticky material ?

A:-Belt conveyor

B:-Chain conveyor

C:-Screw conveyor

D:-Apron conveyor

Correct Answer:- Option-C

Question14:-Match the following.

	I		II
P.	Attrition	1.	Gyratory crusher
Q.	Attrition and impact	2.	Fluid energy mill
R.	Compression	3.	Blake Jaw crusher
S.	Compression and impact	4.	Ball mill

A:-P-4, Q-2, R-1, S-3

B:-P-2, Q-4, R-3, S-1

C:-P-4, Q-2, R-3, S-1

D:-P-2, Q-4, R-1, S-3

Correct Answer:- Option-B

Question15:-Choose the incorrect statement.

A:-Centrifugal pumps deliver liquid at uniform pressure without pulsations.

B:-Reciprocating pumps operate at nearly constant efficiency over a wide range of discharge rates.

C:-For a centrifugal pump, the valves in the discharge line may be closed without injuring the pump.

D:-Both centrifugal and reciprocating pumps are subject to air binding.

Correct Answer:- Option-D

Question16:-Which of the following is a positive displacement pump ?

A:-Centrifugal pump

B:-Gear pump

C:-Axial pump

D:-Diffuser pump

Correct Answer:- Option-B

Question17:-When the diameter of the column is small with deep bed of solids, which problem is prone to occur in a fluidized bed ?

A:-Slugging

B:-Channeling

C:-Entrainment

D:-Circulation

Correct Answer:- Option-A

Question18:-What is the meaning of the following expression : -150 + 200 mesh particles ?

A:-Pass through 150 and retained in 200

B:-Does not pass through 150 and 200

C:-Pass through both 150 and 200

D:-Pass through 200 and retained in 150

Correct Answer:- Option-A

Question19:-A centrifugal pump is used to pump water (density = 1000 kg/m^3) from an inlet pressure of 10^5 Pa to an outlet pressure of 2×10^5 Pa. The exit is at an elevation of 10 m above the pump. The cross sectional area of inlet and outlet pipes are $10^{-3} m^2$. The average velocity of fluid is 10 m/s. The acceleration due to gravity is 10 m/s^2. Neglect the frictional losses in the system. The pump has an efficiency of 80%. The power required for the pump in head of water is

A:-15 m

B:-10.33 m

C:-25 m

D:-20 m

Correct Answer:- Option-C

Question20:-Which of the following Mixers are used for Cohesive Solids ?

A:-Change can mixer

B:-Tumbling mixer

C:-Ribbon blender

D:-Impact wheels

Correct Answer:- Option-A

Question21:-One Btu of heat is supplied to 100 g water at 30°C and atmospheric pressure. There is no heat losses to the surroundings. The temperature of water will increase to

A:-2.52°C

B:-0.252°C

C:-32.52°C

D:-30.252°C

Correct Answer:- Option-C

Question22:-The molar composition of a gas mixture is 10% H_2 , 20% O_2 , 30% N_2 and the rest water vapour. If half of the water vapour is condensed, the molar composition of O_2 in the resulting gas will be

A:-2%

B:-25%

C:-30%

D:-40%

Correct Answer:- Option-B

Question23:-A solution of NaOH is prepared by dissolving 40 g NaOH in 90 g water. The composition of NaOH in the solution as mole fraction and mass fraction are approximately

A:-0.2 and 0.44

B:-0.2 and 0.69

C:-0.167 and 0.44

D:-0.167 and 0.31

Correct Answer:- Option-D

Question24:-Pure carbon is completely burnt in oxygen. The flue gas analysis shows 70% CO_2 , 20% CO and 10%O_2 . The percent excess oxygen used is

A:-0

B:-10

C:-15

D:-20

Correct Answer:- Option-A

Question25:-A sample of gas at 27°C and 1 atm occupies a volume of 5L. The volume occupied by the same gas sample at 47°C is

A:-10.2 L

B:-2.9 L

C:-5.3 L

D:-8.7 L

Correct Answer:- Option-C

Question26:-Choose the incorrect statement.

A:-The partial pressure of a gas in a mixture of gases is the product of total pressure and its mole fraction.

B:-According to Dalton's law, the total pressure exerted by a gas mixture is the sum of partial pressures of individual components of the gas mixture.

C:-Dalton's law of partial pressures assumes that the individual component gases obey ideal gas law.

D:-Dalton's law of partial pressures is applicable to a gas mixture whose individual components obey van der Waals equation.

Correct Answer:- Option-D

Question27:-A sample of gas mixture has 20% O_2 and 80% N_2 on volume basis. The weight percentage O_2 of in the gas mixture is

A:-20

B:-22.2

C:-24.8

D:-28.4

Correct Answer:- Option-B

Question28:-Which of the following is a byproduct of petroleum refining ?

A:-Fuel oil

B:-Lubricating oil

C:-Sulfur

D:-Copper

Correct Answer:- Option-C

Question29:-Which of the following has maximum hydrogen to carbon ratio (by weight) ?

A:-Gasoline

B:-Naphtha

C:-Diesel oil

D:-Fuel oil

Correct Answer:- Option-A

Question30:-Which of the following has higher heat of combustion ?

A:-Aromatics

B:-Olefins

C:-Naphthenes

D:-Paraffins

Correct Answer:- Option-D

Question31:-In petroleum refining operations, the process used for converting paraffins and naphthenes to aromatics is

A:-Alkylation

B:-Hydrocracking

C:-Catalytic reforming

D:-Hydrotreating

Correct Answer:- Option-C

Question32:-The octane number decreases in the order

A:-Naphthenes > Aromatics > Isoparaffins > Olefins > n-paraffins

B:-Olefins > Isoparaffins > Aromatics > Naphthenes > n-paraffins

C:-Isoparaffins > Olefins > Naphthenes > Aromatics > n-paraffins

D:-Aromatics > Isoparaffins > Naphthenes > Olefins > n-paraffins

Correct Answer:- Option-D

Question33:-Hydrotreating is used for

A:-Improving octane number of gasoline

B:-Removing sulphur and nitrogen from petroleum fractions

C:-Removing water from crude oil

D:-Improving cetane number of diesel

Correct Answer:- Option-B

Question34:-Which nuclear fuel is found abundantly in nature ?

A:-Uranium

B:-Thorium

C:-Plutonium

D:-Radium

Correct Answer:- Option-A

Question35:-Which of the two nuclear fuels are produced artificially ?

A:-Pu^{236} and U^{235}

B:-Pu^{244} and U^{234}

C:-Pu^{242} and U^{236}

D:-Pu^{239} and U^{233}

Correct Answer:- Option-D

Question36:-What is ocean thermal energy conversion ?

A:-Harnessing the temperature differences between surface waters and deep ocean waters

B:-Harnessing the temperature differences between the coastal waters and deep ocean waters

C:-Harnessing the heat energy from the underwater volcanoes

D:-Harnessing the heat energy from the tides in ocean

Correct Answer:- Option-A

Question37:-Which is the correct sequence in formation of coal ?

A:-Wood→lignite→peat→bituminous coal

B:-Lignite→peat→anthracite→bituminous coal

C:-Wood→peat→lignite→bituminous coal

D:-Lignite→anthracite→peat→bituminous coal

Correct Answer:- Option-C

Question38:-The increasing order of calorific value is

A:-Lignite, peat, anthracite coal, bituminous coal

B:-Peat, lignite, anthracite coal, bituminous coal

C:-Wood, lignite, bituminous coal, anthracite coal

D:-Wood, lignite, anthracite coal, bituminous coal

Correct Answer:- Option-C

Question39:-Select the incorrect statement regarding solar energy.

A:-Solar energy is cheap, safe and renewable.

B:-Solar photo voltaic cells are suitable electrical energy source for remote locations.

C:-Solar photo voltaic cells are reliable and offers long life.

D:-Solar photo voltaic cells provide continuous supply of electricity.

Correct Answer:- Option-D

Question40:-Which among the following is not a potential geothermal power station in India ?

A:-Puga

B:-Vizhinjam

C:-Tatapani

D:-Tuwa

Correct Answer:- Option-B

Question41:-Heat transfer by conduction occurs through a slab of thickness 10 cm having thermal conductivity 1W/mK. If area perpendicular to direction of heat transfer is $1 m^2$, conduction resistance in this slab is

A:-1 K/W

B:-0.1 K/W

C:-0.01 K/W

D:-10 K/W

Correct Answer:- Option-B

Question42:-For steady conduction heat transfer through a composite wall consisting of material A and material B, the total temperature drop is ΔT and total resistance to heat transfer is R. If individual temperature drops are ΔT_A and ΔT_B and resistance are R_A and R_B, respectively for material A and B, pick out the correct expression

A:- $$\frac{\Delta T}{R} = \frac{\Delta T_A}{R_A} = \frac{\Delta T_B}{R_B}$$

B:- $$\frac{\Delta T}{R} = \frac{\Delta T_A}{R_A} + \frac{\Delta T_B}{R_B}$$

C:- $$\frac{\Delta T}{R} = \frac{\Delta T_A}{R_A} \times \frac{\Delta T_B}{R_B}$$

D:- $$\frac{\Delta T}{R} = \frac{\Delta T_A}{R_A} - \frac{\Delta T_B}{R_B}$$

Correct Answer:- Option-A

Question43:-A spherical container is provided with an insulation to reduce heat loss. On increasing the thickness of this insulation layer, heat loss

A:-Reduces

B:-Increases

C:-Increases and then reduces

D:-Depends on the critical thickness of insulation

Correct Answer:- Option-D

Question44:-Heat transfer apparatus are mostly (except cryogenic liquids) designed in such a way that the temperature drop in the film of boiling liquid is

A:-More than critical temperature drop

B:-Same as critical temperature drop

C:-Less than critical temperature drop

D:-Both (A) and (B)

Correct Answer:- Option-C

Question45:-Inside and outside heat transfer coefficients for a fluid flowing through a tube are respectively 400 W/m^2K and 100 W/m^2K. If the tube material possesses very high thermal conductivity, overall heat transfer coefficient is

A:-80 W/m^2K

B:-300 W/m^2K

C:-500 W/m^2K

D:-120 W/m^2K

Correct Answer:- Option-A

Question46:-Pick correct statement for flow over a flat plate.

A:-For Prandtl number ≈ 1, thermal boundary layer is thicker than hydrodynamic boundary layer

B:-For Prandtl number > 1, thermal boundary layer is thicker than hydrodynamic boundary layer

C:-For Prandtl number < 1, thermal boundary layer is thicker than hydrodynamic boundary layer

D:-For Prandtl number ≈ 1, hydrodynamic boundary layer is thicker than thermal boundary layer

Correct Answer:- Option-C

Question47:-Use of baffles in shell and tube heat exchangers results in

A:-Increase in flow path and velocity of shell fluid

B:-Decrease in flow path and increase in velocity of shell fluid

C:-Increase in flow path and velocity of tube fluid

D:-Decrease in flow path and increase in velocity of tube fluid

Correct Answer:- Option-A

Question48:-When thick liquor is highly viscous, which of the following feeding methods is preferred ?

A:-Forward feed

B:-Backward feed

C:-Parallel feed

D:-All the above give equal performance

Correct Answer:- Option-B

Question49:-Steam consumption in an evaporator is given by

A:-Capacity × Economy

B:-Capacity/Economy

C:-Economy/Capacity

D:-None of the above

Correct Answer:- Option-B

Question50:-Compared to single effect evaporator, for multiple effect evaporators

A:-Both economy and capacity increase

B:-Economy reduces and capacity increases

C:-Economy increases and capacity reduces

D:-Both economy and capacity reduce

Correct Answer:- Option-C

Question51:-Absorption factor is

A:-Ratio of slope of equilibrium line to that of operating line

B:-Ratio of slope of operating line to that of equilibrium line

C:-Product of slope of equilibrium line and that of operating line

D:-Sum of slope of equilibrium line and that of operating line

Correct Answer:- Option-B

Question52:-Fick's first law of diffusion is

A:-$N_A = -D_{AB} \frac{dC_A}{dz}$

B:-$N_A = -CD_{AB} \frac{dC_A}{dz}$

C:-$J_A = -CD_{AB} \frac{dC_A}{dz}$

D:-$J_A = -D_{AB} \frac{dC_A}{dz}$

Correct Answer:- Option-D

Question53:-As temperature increases, equilibrium solubility of a gas in a liquid during absorption

A:-increases

B:-decreases

C:-remains constant

D:-cannot be predicted

Correct Answer:- Option-B

Question54:-Total reflux condition used in a distillation column leads to

A:-Infinite number of stages

B:-Minimum condenser heat duty

C:-Minimum number of stages

D:-Both (B) and (C)

Correct Answer:- Option-C

Question55:-In extractive distillation, the solvent added

A:-Alter relative volatility of the mixture

B:-Is present in the overhead stream

C:-Is of high volatility

D:-All the above

Correct Answer:- Option-A

Question56:-Raoult's law and Henry's law are used to get equilibrium data for

A:-Dilute non-ideal solutions and ideal solutions respectively

B:-Concentrated non-ideal solutions and ideal solutions respectively

C:-Ideal solutions and dilute non-ideal solutions respectively

D:-Both ideal and non-ideal solutions

Correct Answer:- Option-C

Question57:-In an air-water vapour mixture, if PS and RS represent percent saturation and relative saturation respectively, which of the following is correct ?

A:-PS and RS are not related

B:-PS > RS

C:-PS = RS

D:-PS < RS

Correct Answer:- Option-D

Question58:-Which of the following is not a desirable property for a good leaching solvent ?

A:-High vapour pressure

B:-Low density

C:-Low viscosity

D:-High solubility of the solute in the solvent

Correct Answer:- Option-A

Question59:-The cooling tower preferred in applications with large cooling duties is

A:-Forced draft tower

B:-Induced draft tower

C:-Mechanical draft tower

D:-Natural draft tower

Correct Answer:- Option-D

Question60:-Rate controlling mechanism during constant-rate period in drying of a material is

A:-External mass transfer between the material surface and bulk gas

B:-Internal diffusion of moisture through pores of the material

C:-Capillary flow

D:-Vapour diffusion

Correct Answer:- Option-A

Question61:-Which of the following is/are correct about soap manufacturing ?
 i. The kettle process is much better than the Sharples process
 ii. The spent lye is repeatedly recycled in four state operations in the Sharples process
iii. Steam consumption per kg of fat is high in the kettle process
iv. All the stages of the kettle process are carried out in automatically controlled separate   units.

A:-Only i and ii

B:-Only ii and iii

C:-Only iii and iv

D:-Only ii, iii and iv

Correct Answer:- Option-B

Question62:-Match the following columns of I and II about the paper and pulp manufacturing industry.

I	II
P. Sulfate pulp	1. Kraft
Q. Sulfite pulp	2. Magnifite
	3. Brown color pulp
	4. Bamboo and Hardwood preferable

A:-P-1, P-3, Q-4

B:-P-2, P-4, Q-1

C:-P-1, P-4, Q-2

D:-P-3, Q-1, Q-3

Correct Answer:- Option-A

Question63:-Which of the following is not a raw material for soap manufacture ?

A:-Refined tallow

B:-Greese

C:-Lime

D:-Caustic soda

Correct Answer:-Question Cancelled

Question64:-For Sulphuric acid manufacture by contact process which of the following sequence is followed ?

A:-Furnance → Converter → Evaporator

B:-Furnance → Converter → Absorber

C:-Furnance → Evaporator → Absorber

D:-Converter → Furnace → Absorber

Correct Answer:- Option-B

Question65:-Match the following columns of raw material with their respective manufacturing process.

P. Soda ash	1. Chamber process
Q. Caustic soda	2. Wet process
R. Phosphoric acid	3. Diaphragm process
S. Sulphuric acid	4. Solvay process

A:-P-4, Q-1, R-3, S-2

B:-P-4, Q-2, R-3, S-1

C:-P-2, Q-1, R-3, S-4

D:-P-4, Q-3, R-2, S-1

Correct Answer:- Option-D

Question66:-Which of the following is a detergent ?

A:-Benzene hexa chloride

B:-PVC

C:-Alkyl benzene sulphonate

D:-Cellulose nitrate

Correct Answer:- Option-C

Question67:-Which of the following process contributes to the major percentage of caustic soda production ?

A:-Mercury process

B:-Diaphragm process

C:-Membrane process

D:-Chemical process

Correct Answer:- Option-C

Question68:-Match the following classification of water treatment methods in column I with column II.

I	II
P. Temporary hardness	1. Activated carbon
Q. Permanent hardness	2. Zeolite softening
R. Deodorization	3. Ca, Mg bicarbonates
S. Ion exchange	4. Ca, Mg Sulfates or Chlorides

A:-P-3, Q-4, R-1, S-2

B:-P-4, Q-3, R-1, S-2

C:-P-4, Q-1, R-3, S-2

D:-P-1, Q-3, R-2, S-4

Correct Answer:- Option-A

Question69:-The presence of _____ increases the brilliancy and strength of optical glass and _____ imparts high density and high refracting power.

A:-Potassium carbonate and borax

B:-Barium compounds and red lead oxide

C:-Borax and boric acid

D:-Dolomite and Tin oxide

Correct Answer:- Option-B

Question70:-Match the following drugs in Column I with their raw material in Column II.

I	II
P. Parathion	1. Sodium hydroxide
Q. DDT	2. Methanol
	3. Ethanol
	4. Divinyl benzene

A:-P-1, Q-3

B:-P-2, Q-1

C:-P-3, Q-4

D:-P-4, Q-1

Correct Answer:- Option-A

Question71:-In the manufacture of soda ash by Solvay process, the cost of product _____ as the tower height _____ and _____ with _____ in NaCl losses.

A:-increases, decreases, increases, decreases

B:-increases, increases, decreases, decreases

C:-decreases, increases, increases, decreases

D:-decreases, increases, decreases, decreases

Correct Answer:- Option-B

Question72:-Which one of following processes used in the production of caustic soda ?

A:-Brine purifier → multistage evaporator → diaphragm cell

B:-Brine purifier → diaphragm cell → Absorber

C:-Brine purifier → diaphragm cell → multistage evaporator

D:-Diaphragm cell → multistage evaporator → Absorber

Correct Answer:- Option-C

Question73:-Which one of the following process sequences is used in the sugar industry ?

A:-Ca_2HPO_4 /Lime treatment → Crystallization → Crushing

B:-Ca_2HPO_4 /Lime treatment → Multiple stage evaporation → Crystallization

C:-Crushing → Crystallization → Ca_2HPO_4 /Lime treatment

D:-Multiple stage evaporation → Ca_2HPO_4 /Lime treatment → Crystallization

Correct Answer:- Option-B

Question74:-Match the following classification of refractories in Column I with their raw materials in Column II.

I	II
P. Acidic	1. Carbon graphite, chromite
Q. Neutral	2. Alumina, Silica
R. Basic	3. Magnesite, dolomite
	4. Copper, silicone

A:-P-1, Q-3, R-2

B:-P-2, Q-1, R-3

C:-P-2, R-4, R-3

D:-P-3, Q-1, R-4

Correct Answer:- Option-B

Question75:-Which of the following are post Taning operations ?

A:-Deliming and bathing

B:-Soaking and Liming

C:-Shaving, Splitting

D:-Oil taning and chrome taning

Correct Answer:- Option-C

Question76:-State whether the following statements about fermentation are not correct.
 I. Fermentation is the only process for synthesizing some complex compounds.
 II. Unwanted components cannot be removed from the process.
III. It works under high drastic and economic conditions compared to chemical process.

   A:-Only I and II

   B:-Only II and III

   C:-Only III

   D:-All of the above

   Correct Answer:- Option-B

Question77:-Match the process in group I with the catalyst used in group II.
          Group I   Group II
P. Sulphuric acid manufacture   1. Platinum
Q. Vegetable oil hydrogenation   2. Vanadium pentoxide
                                     3. Iron
                                     4. Raney nickel

   A:-P-2, Q-1

   B:-P-2, Q-4

   C:-P-3, Q-1

   D:-P-4, Q-2

   Correct Answer:- Option-B

Question78:-Multiple effect evaporators are commonly used in the manufacture of
P. Paper
Q. Superphosphate
R. Sugar
S. Fats

   A:-P and Q

   B:-P and R

   C:-P and S

   D:-R and S

   Correct Answer:- Option-B

Question79:-Pair the following reactors with their products.
P. Regenerator - tank furnace   1. Citric acid
Q. Fermenter   2. Pulp and paper
R. Continuous digester   3. Glass

   A:-P-2, Q-1, R-3

   B:-P-2, Q-3, R-1

   C:-P-3, Q-2, R-1

   D:-P-3, Q-1, R-2

   Correct Answer:- Option-D

Question80:-In Kraft pulping, fibrous material is cooked in the solution of

   A:-Sodium hydroxide and sodium carbonate

   B:-Sodium hydroxide and sodium sulfate

   C:-Sodium carbonate and sodium sulfate

   D:-None of the above

   Correct Answer:- Option-B

Question81:-The time constant of a first order system with resistance R and capacitance C is

   A:-RC

   B:-R+C

   C:-1/RC

   D:-R-C

   Correct Answer:- Option-A

Question82:-When a bare thermocouple is covered by a protective sheath, the response becomes

   A:-Slower and oscillatory

   B:-Faster and oscillatory

   C:-Slower and non-oscillatory

D:-Faster and non-oscillatory

Correct Answer:- Option-C

Question83:-The closed loop poles of a stable second order system could be

A:-Complex conjugate

B:-Real and negative

C:-Real and positive

D:-None of the above

Correct Answer:- Option-B

Question84:-If the atmospheric temperature increases at constant absolute humidity, the relative humidity would

A:-increase

B:-decrease

C:-constant

D:-none of the above

Correct Answer:- Option-B

Question85:-In a process of heating of air at constant pressure, the dry bulb temperature of inlet and outlet air are 35°C and 75°C respectively. The inlet air has a wet bulb temperature of 28°C and a humidity of 28%. Comment on the dew point temperature of inlet air.

A:-Greater than 75°C

B:-Equal to 28°C

C:-In between 28°C and 75°C

D:-Less than 28°C

Correct Answer:- Option-D

Question86:-The basic working principle of a pressure gauge is

A:-Seebeck effect

B:-Hooke's law

C:-Peltier effect

D:-None of the above

Correct Answer:- Option-B

Question87:-The monomeric units of Nylon 66 are

A:-Hexamethylenediamine and Adipic acid

B:-Hexamethylenediamine and Terephthalic acid

C:-Terephthalic acid and Adipic acid

D:-None of the above

Correct Answer:- Option-A

Question88:-Which among the following is thermosetting plastic ?

A:-Silicone

B:-Polyester

C:-Polyurethane

D:-All of the above

Correct Answer:- Option-D

Question89:-Thermocol is produced from

A:-Polypropylene

B:-Polystyrene

C:-PVC

D:-Polyethylene

Correct Answer:- Option-B

Question90:-Polymers produced by using single type of monomer

A:-Homopolymer

B:-Copolymer

C:-Block polymer

D:-Graft polymer

Correct Answer:- Option-A

Question91:-Under constant drying conditions, when drying takes place from all surfaces, during constant rate period, the rate of drying is

    A:-Directly proportional to solid thickness

    B:-Independent of solid thickness

    C:-Inversely proportional to solid thickness

    D:-Directly proportional to the square of solid thickness

    Correct Answer:- Option-B

Question92:-Production mechanism of copolymers

    A:-Step-growth polymerization

    B:-Chain-growth polymerization

    C:-Both 1 and 2

    D:-None of the above

    Correct Answer:- Option-C

Question93:-Adhesives used for constructions

    A:-Polymer adhesives

    B:-Epoxy adhesives

    C:-Acrylic adhesives

    D:-All of the above

    Correct Answer:- Option-D

Question94:-What is Heinrich ratio which relates the number of near miss incidents and minor injuries to a major injury ?

    A:-250:25:1

    B:-300:25:1

    C:-300:29:1

    D:-250:29:1

    Correct Answer:- Option-C

Question95:-Bhopal Gas Tragedy happened on

    A:-2nd December 1984

    B:-2nd January 1985

    C:-2nd November 1984

    D:-2nd December 1985

    Correct Answer:- Option-A

Question96:-Least effective control in safety hierarchy

    A:-PPE

    B:-Elimination

    C:-Administrative control

    D:-Engineering control

    Correct Answer:- Option-A

Question97:-The limit of dissolved oxygen in water for the survival of aquatic plants and animals.

    A:-100 mg/l

    B:-5 mg/l

    C:-0.1 mg/l

    D:-50 mg/l

    Correct Answer:- Option-B

Question98:-Accident incident theory is proposed by

    A:-Heinrich

    B:-Domino

    C:-Peterson

    D:-None of the above

    Correct Answer:- Option-C

Question99:-The principle of Electrostatic precipitator

    A:-Corona discharge

    B:-Precipitation

    C:-Sedimentation

    D:-None of the above

    Correct Answer:- Option-A

Question100:-Gas chromatography is used for the measurement of

    A:-Temperature

    B:-Pressure

    C:-Flow rate

    D:-Concentration

    Correct Answer:- Option-D