

# PROVISIONAL ANSWER KEY

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Question1:-Hardness in water is caused by the presence of:

- A:-sodium chloride
- B:-sodium carbonate
- C:-calcium chloride
- D:-potassium nitrate

Correct Answer:- Option-C

Question2:-pH of acidic solution is:

- A:-14
- B:-7
- C:-less than 7
- D:-more than 7

Correct Answer:- Option-C

Question3:-Which of the following methods employs ion-selective membranes?

- A:-softening
- B:-electrodialysis
- C:-super-filtration
- D:-flash evaporator

Correct Answer:- Option-B

Question4:-Coagulants help in settling of:

- A:-suspended impurities only
- B:-fine suspended impurities
- C:-colloidal particles only
- D:-both the suspended and colloidal particles.

Correct Answer:- Option-D

Question5:-Ultraviolet rays are used in water treatment for :

- A:-illumination
- B:-sterilization
- C:-coagulation
- D:-sedimentation

Correct Answer:- Option-B

Question6:-Which of following fuel gases possess the highest calorific value?

- A:-water gas
- B:-coal gas
- C:-producer gas
- D:-natural gas

Correct Answer:- Option-B

Question7:-The process of splitting of bigger hydrocarbons into smaller hydrocarbon molecules, is called:

- A:-pyrolysis
- B:-thermal decomposition
- C:-cracking
- D:-combustion

Correct Answer:- Option-C

Question8:-Analysis of flue gases is done by:

- A:-Boy's gas calorimeter
- B:-Orsat apparatus
- C:-retort
- D:-Bomb calorimeter

Correct Answer:- Option-B

Question9:-Lignite is:

- A:-lowest rank coal
- B:-highest rank coal
- C:-used in metallurgy of iron
- D:-none of the above

Correct Answer:- Option-A

Question10:-During fermentation of molasses, the enzyme which converts glucose and fructose into alcohol is:

- A:-zymase
- B:-lypase
- C:-invertase
- D:-maltase

Correct Answer:- Option-A

Question11:-For good performance, the hydrocarbon molecules in a diesel fuel should be:

- A:-branch-chained
- B:-side-chained
- C:-straight-chained
- D:-aromatic

Correct Answer:- Option-C

Question12:-EDTA method of determining hardness of water can be used to determine:

- A:-all types of hardness
- B:-temporary hardness
- C:-permanent hardness only
- D:-alkaline hardness only

Correct Answer:- Option-A

Question13:-During reverse osmosis:

- A:-Dissolved salts are pushed out through the semipermeable membrane
- B:-only dissolved ionic salts are pushed out through the semipermeable membrane
- C:-pure water is pushed out through semipermeable membrane.
- D:-both water and dissolved salts are pushed out through the semipermeable membrane

Correct Answer:- Option-C

Question14:-Swimming for a long time in salt water makes the skin of one's fingertips wrinkled. Which one of the following properties is responsible for this observation?

- A:-Osmosis
- B:-Dialysis
- C:-Electrodialysis
- D:-Coagulation

Correct Answer:- Option-A

Question15:-Reflectivity of a black body is -----

- A:-0
- B:-0.5
- C:-0.8
- D:-1.0

Correct Answer:- Option-A

Question16:-For supporting horizontal cylindrical vessels -----supports are commonly used

- A:-saddle
- B:-skirt
- C:-lug
- D:-bracket

Correct Answer:- Option-A

Question17:-Scale formation in boilers causes :

- A:-no loss of heat
- B:-wastage of heat
- C:-increase in efficiency
- D:-none of the above

Correct Answer:- Option-B

Question18:-Multiple effect evaporation is carried out ,to -----

- A:-decreases heat losses
- B:-increase capacity
- C:-decrease capital cost
- D:-decrease working cost

Correct Answer:- Option-D

Question19:-The calorific value of a fuel is expressed as :

- A:-kcal cm
- B:-kcal cm<sup>-3</sup>
- C:-kcal m<sup>-3</sup>
- D:-cal m<sup>-3</sup>

Correct Answer:- Option-C

Question20:-The process of vulcanisation makes rubber :

- A:-soluble in water
- B:-hard
- C:-soft
- D:-more elastic

Correct Answer:- Option-B

Question21:-Bakelite is manufactured by heating together :

- A:-phenol and formaldehyde
- B:-vinyl chloride and benzene
- C:-phenol and acetone
- D:-phenol and oxalic acid

Correct Answer:- Option-A

Question22:-A plastic which can be softened on heating hardened on cooling is called :

- A:-thermoelastic
- B:-thermoplastic
- C:-thermosetting
- D:-thermite

Correct Answer:- Option-B

Question23:-Desalination is a process of removing :

- A:-oil
- B:-mineral acids
- C:-common salt
- D:-hardness from water

Correct Answer:- Option-C

Question24:-Most popular and ideal disinfectant in water works is :

- A:-bleaching powder
- B:-ozone
- C:-chlorine
- D:-lime

Correct Answer:- Option-C

Question25:-Standard atmospheric pressure in terms of water column is :

- A:-9.81m
- B:-10.33m
- C:-8.75m
- D:-12.35m

Correct Answer:- Option-B

Question26:-Electrolytic conduction is due to :

- A:-movement of the electrolyte through the external wire
- B:-flow of electrons through the solution
- C:-migration of ions to the oppositely charged electrodes
- D:-flow of positive ions through the external wire

Correct Answer:- Option-C

Question27:-A galvanic cell converts :

- A:-electrical energy into chemical energy
- B:-chemical energy into electrical energy
- C:-electrical energy into heat energy
- D:-chemical energy into heat energy

Correct Answer:- Option-B

Question28:-Select a suitable adsorbent for the removal of phenolic contaminants from waste water

- A:-active carbon
- B:-silica gel
- C:-molecular sieve

D:-alumina

Correct Answer:- Option-A

Question29:-The process of zinc coating over iron sheets by hot-dipping is called :

A:-galvanisation

B:-tinning

C:-sheradizing

D:-anodizing

Correct Answer:- Option-A

Question30:-Drying oils supply to paint film :

A:-main film-forming constituent

B:-medium or vehicle

C:-water-proofness

D:-all of these.

Correct Answer:- Option-D

Question31:-Butter is a colloidal sol containing :

A:-water dispersed in fat

B:-fat globules dispersed in water

C:-fat dispersed in casein

D:-suspension of casein in water

Correct Answer:- Option-A

Question32:-Tyndall effect is due to :

A:-absorption of light

B:-transmittance of light

C:-reflection of light

D:-scattering of light

Correct Answer:- Option-D

Question33:-The atomic number of an element is 9. During compound formation, it normally :

A:-gains 2 electrons

B:-loses 1 electron

C:-gains 1 electron

D:-losses 2 electrons

Correct Answer:- Option-C

Question34:-Nature of bonding in diamond is :

A:-ionic

B:-covalent

C:-coordinate

D:-metallic

Correct Answer:- Option-B

Question35:-Silicon is used in transistors as :

A:-conductor

B:-insulator

C:-semiconductor

D:-capacitor

Correct Answer:- Option-C

Question36:-Most poisonous pollutant in water is :

A:-arsenic

B:-phosphate

C:-zinc

D:-carbon dioxide

Correct Answer:- Option-A

Question37:-Bhopal gas tragedy in 1984 was caused by :

A:-carbonyl chloride

B:-carbon monoxide

C:-methyl cyanide

D:-methyl isocyanate

Correct Answer:- Option-D

Question38:-Which one of the following refractories is used in nuclear engineering as moderator?

A:-chromite bricks

B:-carborundum

C:-Beryllia bricks

D:-fire clay bricks

Correct Answer:- Option-C

Question39:-A bullet-resistant glass is obtained by:

A:-embedding a wiremesh at the centre of the glass sheet

B:-pressing together several layers of glass with vinyl resins in alternate layers

C:-using two or more plates of glass separated by 6-13mm thick gap containing dehydrated air

D:-none of the above

Correct Answer:- Option-B

Question40:-The single most important property of lubricating oil is its:

A:-fire-point

B:-cloud-point

C:-oiliness

D:-viscosity-index

Correct Answer:- Option-D

Question41:-Purest form of Iron is:

A:-steel

B:-wrought iron

C:-pig iron

D:-cast iron

Correct Answer:- Option-B

Question42:-Caprolactum is a monomer of:

A:-nylon-6

B:-Teflon

C:-PTFE

D:-Melamine

Correct Answer:- Option-A

Question43:-The emissivity of a real surface is always :

A:-greater than unity

B:-equal to unity

C:-less than unity

D:-less than or greater than unity

Correct Answer:- Option-C

Question44:-Asphalt is obtained from-----in a refinery

A:-residues

B:-intermediate distillates

C:-heavy distillates

D:-light distillates

Correct Answer:- Option-A

Question45:-An example of high explosive is :

A:-gun powder

B:-nitrocellulose

C:-TNT

D:-lead oxide

Correct Answer:- Option-C

Question46:-Identification of an organic compound can be established by using:

A:-UV spectroscopy

B:-IR spectroscopy

C:-chromatography

D:-none of the above

Correct Answer:- Option-B

Question47:-Which noise can be tolerated by human ear?

A:-20 decibels

B:-100 decibels

C:-80 decibels

D:-120 decibels

Correct Answer:- Option-C

Question48:-A fluid has no viscosity:

A:-real fluid

- B:-ideal fluid
  - C:-Newtonian fluid
  - D:-Non-Newtonian fluid
- Correct Answer:- Option-B

Question49:-The principle of continuity is based on

- A:-law of conservation of energy
- B:-law of conservation of mass
- C:-law of conservation of momentum
- D:-all of the above

Correct Answer:- Option-B

Question50:-The absolute pressure is equal to:

- A:-gauge pressure - atmospheric pressure
- B:-gauge pressure + vacuum pressure
- C:-gauge pressure + atmospheric pressure
- D:-Atmospheric pressure -gauge pressure

Correct Answer:- Option-C

Question51:-Which of the following is present in lemon?

- A:-carbonic acid
- B:-tartaric acid
- C:-Oxalic acid
- D:-citric acid

Correct Answer:- Option-D

Question52:-Which of the following pair have pH less than 7 ?

- A:-tea and coffee
- B:-gastric juice and NaOH
- C:-lemon juice and lime water
- D:-sodium carbonate and sodium bicarbonate

Correct Answer:- Option-A

Question53:-When blue litmus is added to dil. HCl

- A:-it changes to white
- B:-it remains blue
- C:-it becomes red
- D:-it changes to green colour

Correct Answer:- Option-C

Question54:-A gas is neither combustible nor supporter of combustion, turns moist blue litmus paper red, used in cold drinks. The gas is:

- A:-CO
- B:-carbon dioxide
- C:-hydrogen
- D:-chlorine

Correct Answer:- Option-B

Question55:-If we add phenolphthalein to dil.HCl :

- A:-The solution turns pink
- B:-The solution remains colourless
- C:-The solution becomes green
- D:-The solution becomes orange red

Correct Answer:- Option-B

Question56:-You are advised not to see the SUN directly with your eye,because the converging light will destroy the :

- A:-Retina
- B:-Eye-ball
- C:-Eye-lens
- D:-Pupil

Correct Answer:- Option-A

Question57:-"When physical condition remain the same, the electric current flowing through a conductor is

directly proportional to the potential difference". This law is called :

- A:-Ohm's law
- B:-Ampere's law
- C:-Coulomb's law
- D:-Joule's law

Correct Answer:- Option-A

Question58:-Rheostat is used to vary:

- A:-current
- B:-potential difference
- C:-power
- D:-resistance

Correct Answer:- Option-A

Question59:-Water movement against gravity is due to :

- A:-Osmosis
- B:-Respiration
- C:-Photosynthesis
- D:-Transpiration

Correct Answer:- Option-D

Question60:-During rainy season,it is difficult to open and close doors and windows due to:

- A:-Imbibition
- B:-Endomosis
- C:-Exomosis
- D:-Diffusion

Correct Answer:- Option-A

Question61:-The odour of sulphur dioxide gas is:

- A:-Pungent
- B:-Odourless
- C:-Sweet smelling
- D:-Foul smelling

Correct Answer:- Option-A

Question62:-The problems of fluid statics are influenced by the following forces:

- A:-gravity and viscous forces
- B:-gravity and pressure forces
- C:-viscous and surface tension forces
- D:-gravity and surface tension forces

Correct Answer:- Option-B

Question63:-Mercury is generally used in manometers for measuring:

- A:-low pressure accurately
- B:-large pressure accurately
- C:-all pressures except the smaller ones
- D:-very low pressures

Correct Answer:- Option-C

Question64:-The flow in a river during the period of heavy rainfall is:

- A:-steady,uniform,two-dimensional
- B:-unsteady,uniform and three-dimensional
- C:-unsteady,non-uniform and three-dimensional
- D:-steady,non-uniform and three dimensional

Correct Answer:- Option-C

Question65:-A pitot-tube is an instrument for measuring:

- A:-pressure of flow
- B:-discharge of fluid
- C:-velocity of flow
- D:-total energy

Correct Answer:- Option-C

Question66:-The coefficient of discharge of a venturimeter lies within the limits:

- A:-0.7-0.9
- B:-0.6-0.8
- C:-0.75-0.95
- D:-0.95-0.99

Correct Answer:- Option-D

Question67:-The Reynolds experiments for determining the character of flow in pipes involved:

- A:-the measurement of velocity by pitot-tube
- B:-measurement of flow only

C:-observation of the condition of dye -filament which become wavy or irregular at the onset of the turbulence.

D:-measurement of intensity of turbulence

Correct Answer:- Option-C

Question68:-The laminar flow is characterized by:

A:-irregular motion of fluid particles

B:-fluid particles moving in layers parallel to the boundary layer

C:-high Reynolds number of flow

D:-existence of eddies

Correct Answer:- Option-B

Question69:-The parameters which determines the friction factor for turbulent flow in rough pipe are:

A:-Froude number and relative roughness

B:-Froude number and Mach number

C:-Reynolds number and relative roughness

D:-Mach number and relative roughness

Correct Answer:- Option-C

Question70:-In orifice flow, the vena contracta represents:

A:-the section where the jet has maximum flow area

B:-the location where the jet area is minimum , the streamlines parallel and the pressure atmospheric

C:-the section where the pressure is above atmospheric

D:-the opening of orifice itself

Correct Answer:- Option-B

Question71:-What is the major use of carbon molecular sieve?

A:-separation of lower hydro-carbons

B:-adsorption of organics from drinking water

C:-separation of air to produce nitrogen

D:-separation of suspended impurities from air

Correct Answer:- Option-C

Question72:-Rotameter is used for measuring:

A:-density of fluids

B:-velocity of fluids in pipes

C:-viscosity of fluids

D:-discharge of fluids

Correct Answer:- Option-D

Question73:-Joule-sec is the unit of

A:-thermal conductivity

B:-kinematic viscosity

C:-universal gas constant

D:-planck's constant

Correct Answer:- Option-D

Question74:-Why are baffles provided in heat exchangers?

A:-To reduce heat transfer rate

B:-To increase heat transfer rate

C:-To remove dirt

D:-To reduce vibration

Correct Answer:- Option-B

Question75:-Kinetic energy of a gas molecule is zero at :

A:-0°C

B:-273°C

C:-100°C

D:-273°C

Correct Answer:- Option-D

Question76:-Cavitation will takes place in case of :

A:-pelton wheel

B:-rotary pump

C:-reciprocating pump

D:-centrifugal pump

Correct Answer:- Option-D

Question77:-Fog is formed due to:



- A:-humidity
- B:-low pressure
- C:-temperature fall of atmosphere
- D:-all of the above

Correct Answer:- Option-C

Question78:-Velocity head is given by :

- A:- $v/g$
- B:- $v^2/2g$
- C:- $v^3/2g$
- D:- $v^2/2g^2$

Correct Answer:- Option-B

Question79:-Inclined single column manometer is useful in the measurement of-----pressure.

- A:-small
- B:-medium
- C:-high
- D:-negative

Correct Answer:- Option-A

Question80:-To separate entrained liquid or solid in gas flow, we use a -----.

- A:-steam trap
- B:-strainer
- C:-drip leg
- D:-open drain

Correct Answer:- Option-C

Question81:-One kilogram of water contains 4g of NaOH .The concentration of the solution is expressed as:

- A:-0.1molal
- B:-0.1molar
- C:-Decinormal
- D:-0.5 Normal

Correct Answer:- Option-A

Question82:-The first use of quantum theory to explain the structure of atom was made by:

- A:-Heisenberg
- B:-Bohr
- C:-Planck
- D:-Einstein

Correct Answer:- Option-B

Question83:-Which of the following relates to photon both as wave motion and as stream of particles?

- A:-Interference
- B:- $E=mc^2$
- C:-Diffraction
- D:- $E=hv$

Correct Answer:- Option-D

Question84:-A larger increase in reaction rate with small rise in temperature is due to:

- A:-increase in number of activated molecules
- B:-increase in number of collisions
- C:-lowering of activation energy
- D:-shortening of mean free path

Correct Answer:- Option-A

Question85:-The function of gypsum is to:

- A:-start the setting of cement
- B:-stop the hydration of cement
- C:-retard the easily initial setting of the cement
- D:-give the colour of the cement

Correct Answer:- Option-C

Question86:-If the temperature remains constant, the volume of a given mass of gas is inversely proportional to its pressure.this statement is known as:

- A:-Boyle's law
- B:-Charle's law
- C:-Gay-Lussac law
- D:-Joule's law

Correct Answer:- Option-A

Question87:-The kinematic viscosity is the ratio of:

- A:-viscosity to the density of the liquid
- B:-mass to the density of the liquid
- C:-viscosity to the specific weight of the liquid
- D:-density to the specific weight of the liquid

Correct Answer:- Option-A

Question88:-Tooth paste shows a -----type of flow behaviour

- A:-Newtonian
- B:-Ideal
- C:-Bingham plastic
- D:-Pseudo plastic

Correct Answer:- Option-C

Question89:-At critical speed in a ball mill:

- A:-centrifugal force = gravitational force
- B:-centripetal force = centrifugal force
- C:-centrifugal force = pressure force
- D:-centripetal force = gravitational force

Correct Answer:- Option-A

Question90:-Fractionating column is divided into two section,one is called as -----section and other is called as -----section

- A:-evaporation; condensation
- B:-boiling; cooling
- C:-rectifying; stripping
- D:-volatile; reflux

Correct Answer:- Option-C

Question91:-The rule of material balance always deals with the equality of -----

- A:-moles in and out
- B:-volumes in and out
- C:-masses in and out
- D:-concentrations in and out

Correct Answer:- Option-C

Question92:-The driving force for crystallization is -----

- A:-temperature difference
- B:-density difference
- C:-viscosity
- D:-super saturation

Correct Answer:- Option-D

Question93:-Pyrometers which react to all wavelengths of incident radiant energy are known as -----pyrometers

- A:-polarising
- B:-total radiation
- C:-optical
- D:-disappearing filament

Correct Answer:- Option-B

Question94:-The major limitation of the first law of Thermodynamics that it doesnot consider:

- A:-heat as a form of energy
- B:-rate of change of a process
- C:-direction of change
- D:-spontaneous process

Correct Answer:- Option-C

Question95:-Fourier's law states that the rate of heat transfer per unit surface area is proportional to the -----gradient normal to the surface.

- A:-viscosity
- B:-temperature
- C:-pressure
- D:-velocity

Correct Answer:- Option-B

Question96:-If there is a gravitational field acting on a fluid , then at any local region of the fluid the

gravitational force per unit volume is the product of acceleration due to gravity and-----

- A:-density
- B:-viscosity
- C:-velocity
- D:-specific volume

Correct Answer:- Option-A

Question97:-The most effective heat exchanger is -----

- A:-the parallel-flow type
- B:-the counter-flow type
- C:-the cross-flow type
- D:-all of the above

Correct Answer:- Option-C

Question98:-The ratio of the emissive power of a body to the emissive power of a black body at the same

temperature is -----to the absorptivity of the body

- A:-not related
- B:-not proportional
- C:-lower
- D:-equal

Correct Answer:- Option-D

Question99:-Force by inertia is a product of mass and:

- A:-shear stress
- B:-area
- C:-pressure
- D:-acceleration

Correct Answer:- Option-D

Question100:-Free convection arises from the-----differences between the fluid in contact with a

surface and the surrounding fluid.

- A:-density
- B:-viscosity
- C:-mass
- D:-volume

Correct Answer:- Option-A