FINAL ANSWER KEY

Question Paper Code:	71/2017/OL
Category Code:	542/2014
Exam:	Assistant Professor (Chemical Engineering)
Medium of Question:	English
Date of Test	21-08-2017
Department	Technical Education
Alphacode	A

Question1:-The first Attornigeneral of India
A:-M.C. Sedalvad
B:-C.K. Daftari
C:-V. Narahari Rao
D:-Gulsarilal Nanda
Correct Answer:- Option-A

Question2:-In which newspaper "Veenapoov" of Kumaranasan firstly published ?
A:-Mathrubhoomi
B:-Kerala Kaumudi
C:-Mithavadi
D:-Vivekodayam
Correct Answer:- Option-C

Question3:-Who write the Mahakavya named 'Vishaka Vijayam' ?
A:-A.R. Raja Raja Varmma
B:-Ulloor
C:-Kerala Varmma Valiya Koyithamburan
D:-Vallathol
Correct Answer:- Option-C

Question4:-Which Part of Indian Constitution deals about State Administration ?
A:-`5^(th)` Part
B:-`7^(th)` Part
C:-`6^(th)` Part
D:-`8^(th)` Part
Correct Answer:- Option-C

Question5:-Which book is also known as 'Keralaramam' ?
A:-Nijananda Vilasam
B:-Hortus Malabaricus
C:-Samshepa Vedartham
D:-Vasantholsavam
Correct Answer:- Option-B

Question6:-The year of 'Temple entry proclamation'.
A:-1936 Dec. - 12
B:-1936 Nov. - 12
C:-1936 Sept. - 12
D:-1936 Oct. - 12
Correct Answer:- Option-B

Question7:-'Mundhiri Kinar' is related to which social reformer ?
A:-Ananda Thirthan
B:-Ayyankali
C:-Agamananda Swami
D:-Vaikunda Swamikal
Correct Answer:- Option-D

Question8:-Chattambi Swamikal born in
A:-Patyam
B:-Venganoor
C:-Kannamoola
D:-Chavara
Correct Answer:- Option-C

Question9:-The first Butterfly Safari Park in Asia.

A:-Thenmala
B:-Mathikettan Chola
C:-Shalimar
D:-Kasiranga National Park
Correct Answer:- Option-A

Question10:-Right to Education Act passed by Indian Parliament.
A:-August - 2009
B:-August - 2008
C:-September - 2009
D:-August - 2010
Correct Answer:- Option-A

Question11:-The first RTI Application submitted by
A:-M. Vijaya Kumar
B:-Theresa Bhatacharya
C:-Shahid Raza Burney
D:-P.A. Abraham
Correct Answer:- Option-C

Question12:-The drama 'Punarjanmam' written by
A:-Thakazhi Sivasankara Pilla
B:-P. Kesava dev
C:-Lalithambika Anthrjanam
D:-S.K. Pottakkad
Correct Answer:- Option-C

Question13:-Who said "Iam the leader, shoot me first before you kill others" ?
A:-Sarojini Naidu
B:-A.V. Kuttimalu Amma
C:-Annie Besent
D:-Akkammacheriyan
Correct Answer:- Option-D

Question14:-The Autobiography of A.K Gopalan
A:-Jeevitha Katha
B:-In the cause of the people
C:-Marakkatha Ormakal
D:-Ente Jeevithanubhavangal
Correct Answer:-Question Cancelled

Question15:-The statue of Akkammacheriyan erected at
A:-Venganoor
B:-Thrissur
C:-Thycaud
D:-Vellayambalam
Correct Answer:- Option-D

Question16:-Which novel of Kesava Dev based the tragedy of partition of India ?
A:-Ayalkar
B:-Bhranthalayam
C:-Adhikaram
D:-Munnottu
Correct Answer:- Option-B

Question17:-The National Food Security Act was signed into law on
A:-`12^(th)` Sept. - 2013
B:-`12^(th)` Nov. - 2013
C:-`22^(nd)` Sept. - 2013
D:-`22^(nd)` Nov. - 2013
Correct Answer:- Option-A

Question18:-Which Article of Indian Constitution deals about the prevention of untouchability ?
A:-Article - 16
B:-Article - 14
C:-Article - 21
D:-Article - 17
Correct Answer:- Option-D

Question19:-Among the following which is the book of Herman Gundert ?

A:-Puthan Pana

B:-Mishiha Charitham

C:-Sathyaveda ltihasam

D:-Janova Parvam

Correct Answer:- Option-C

Question20:-The Araya Samajam was founded by

A:-Sahodaran Ayyappan

B:-Pandit Karuppan

C:-Ayyankali

D:-Ayya Vaikunda Swamikal

Correct Answer:- Option-B

Question21:-Coating of fluorescent lamps

A:-Reduces glare

B:-Converts UV rays to visible light

C:-Converts visible light to UV rays

D:-Converts visible light to IR rays

Correct Answer:- Option-B

Question22:-If the supply frequency of a 4 pole induction motor is 50 Hz and that of rotor induced emf is 1.5 Hz, at what speed the motor is running ?

A:-1500 rpm

B:-1490 rpm

C:-1455 rpm

D:-1425 rpm

Correct Answer:- Option-C

Question23:-Calculate the average value of a sinusoidal voltage with a maximum value of 100 V.

A:-63.66 V

B:-70.71 V

C:-31.84 V

D:-141.4 V

Correct Answer:- Option-A

Question24:-A coil consists of 700 turns and a current of 10 A on the coil gives rise to a flux of 1.2 mWb. Find the voltage induced in the coil if the current is reversed in 0.02 second.

A:-0.9 mV

B:-1.43 mV

C:-1.96 mV

D:-1.68 mV

Correct Answer:- Option-D

Question25:-The open circuit test on transformer will provide the value of

A:-Core loss

B:-Full load Cu loss

C:-Cu loss at half load

D:-Total full load loss

Correct Answer:- Option-A

Question26:-As per IS classification, the minimum compressive strength of a first class brick should be

A:-75 Kg/`cm^(2)`

B:-100 Kg/`cm^(2)`

C:-125 Kg/`cm^(2)`

D:-150 Kg/`cm^(2)`

Correct Answer:- Option-B

Question27:-The workability of concrete is assessed through

1. Slump test
2. Compaction factor test
3. Setting time of cement
4. Le-Chatelier's apparatus

A:-1 and 2

B:-2 and 3

C:-3 and 4

D:-4 and 1

Correct Answer:- Option-A

Question28:-A 30 m metric chain is found to be 10 cm too short throughout a measurement. If the distance measured is recorded as 300 m, what is the actual distance ?

A:-300.1 m

B:-301.0 m

C:-299.0 m

D:-310.0 m

Correct Answer:- Option-C

Question29:-Consider the following statements :
1. Ranging
2. Levelling
3. Contouring
Which of these statements is/are correct ?

A:-1 only

B:-1 and 2

C:-2 and 3

D:-1, 2 and 3

Correct Answer:-Question Cancelled

Question30:-Soundness test of cement is carries out to determine its

A:-Alumina content

B:-Iron oxide content

C:-Free lime content

D:-Durability under sea water

Correct Answer:- Option-C

Question31:-How many molecules of nitrogen will be present in 28g of nitrogen at standard temperature and pressure ?

A:-1 molécule

B:-2 molécules

C:-6.023×`10^(23)` molécules

D:-12.046×`10^(23)` molécules

Correct Answer:- Option-C

Question32:-Which of the following ratios defines the recycle ratio in a chemical process ?

A:-recycle stream/fresh feed stream

B:-gross feed stream/recycle feed stream

C:-recycle stream/gross feed stream

D:-None of these

Correct Answer:- Option-A

Question33:-The molar composition of a gas is 10% `H_(2)` , 10% `O_(2)`, 30% `CO_(2)` and balance `H_(2)O`. If 50%`H_(2)O` condenses, the final mole% of `H_(2)` in the gas on a dry basis will be

A:-10%

B:-5%

C:-18.18%

D:-20%

Correct Answer:- Option-D

Question34:-The weight fraction of methanol in an aqueous solution is 0.64. The mole fraction of mathanol `X_(m)` satisfies

A:-`X_(m)` < 0.5

B:-`X_(m)`= 0.5

C:-0.5 < `X_(m)` < 0.64

D:-`X_(m)` `>=` 0.64

Correct Answer:- Option-B

Question35:-The necessary and sufficient condition for equilibrium between two phase is

A:-concentration of each component should be same in the two phase

B:-the temperature of each phase should be same

C:-the pressure should be same in the two phases

D:-the chemical of each component should be same in the two phases

Correct Answer:-Question Cancelled

Question36:-Van Laar equation deals with the activity coefficients in

A:-binary solutions

B:-ternary solutions

C:-azeotropic mixture only

D:-none of these

Correct Answer:- Option-A

Question37:-Entropy is a measure of the _____ of a system.

A:-temperature changes only

B:-disorder

C:-orderly behaviour

D:-none of these

Correct Answer:- Option-B

Question38:-Which of the following is a characteristic of an adiabatic process ?

A:-ΔU = 0

B:-W = 0

C:-Q = 0

D:-ΔV = 0

Correct Answer:- Option-C

Question39:-The number of degrees of freedom for a mixture of ice and water are

A:-2

B:-1

C:-3

D:-0

Correct Answer:- Option-B

Question40:-The equation dU = TdS - PdV is applicable to infinitesimal changes occurring in

A:-an open system of constant composition

B:-a closed system of constant composition

C:-an open system with changes in composition

D:-a closed system with changes in composition

Correct Answer:- Option-B

Question41:-In case of a pressure driven laminar flow of a Newtonian fluid of viscosity (`mu`) through a horizontal circular pipe, the velocity of the fluid is proportional to

A:-`mu`

B:-`mu^0.5`

C:-`mu^(-1)`

D:-`mu^(-0.5)`

Correct Answer:- Option-C

Question42:-Losses for flow through valves and fittings are expressed in terms of

A:-drag coefficient

B:-equivalent length of a straight pipe

C:-shape factor

D:-roughness factor

Correct Answer:- Option-B

Question43:-The local velocity of a fluid along a streamline can be measured by

A:-Pitot tube

B:-Venturi meter

C:-Rota meter

D:-Orifice meter

Correct Answer:- Option-A

Question44:-Water is flowing under laminar condition in a pipe of length L if the diameter of the pipe is doubled, for a constant volumetric flow rate, the pressure drop across the pipe

A:-decreases 2 times

B:-decreases 16 times

C:-increases 2 times

D:-increases 16 times

Correct Answer:- Option-B

Question45:-Bernoull's equation cannot be applied when the flow is

A:-rotational

B:-turbulent

C:-unsteady

D:-all of the above

Correct Answer:- Option-D

Question46:-In pipe flow, heat is transferred from hot wall to the liquid by

A:-conduction only

B:-forced convection only

C:-forced convection and conduction

D:-free and forced convection

Correct Answer:- Option-C

Question47:-LMTD in case of counter flow heat exchanger as compared to parallel flow heat exchanger is

A:-higher

B:-lower

C:-same

D:-depends on the area of heat exchanger

Correct Answer:- Option-A

Question48:-Which mechanism of heat transfer is involved in heating a pot with water on a stove ?

A:-Convection

B:-Conduction

C:-Radiation

D:-Induction

Correct Answer:-Question Cancelled

Question49:-The heat transfer by radiation from a mild steel surface is to be reduced by reducing the emissivity of the surface. This can be best achieved by

A:-painting the surface black

B:-roughening the surface

C:-surface a mirror finish

D:-none of these

Correct Answer:- Option-C

Question50:-Water enters a thin walled tube (L=1m, D=3mm) at an inlet temperature of 97°C and mass flow rate 0.015 kg/s. The tube wall is maintained at a constant temperature of 27°C. Given the following data for water
Density `rho` = 1000 kg/`m^(3)`, Viscosity `mu` = 489×`10^(-6)` Ns/`m^(2)`, Specific heat `C_(p)` = 4184J/kg/K
Inside heat transfer coefficient h = 12978 W/(`m^(2)`K)
The outlet temperature of water in °C is

A:-28

B:-37

C:-62

D:-96

Correct Answer:- Option-B

Question51:-Prandtl number is the ratio of

A:-mass diffusivity to thermal diffusivity

B:-Momentum diffusivity to thermal diffusivity

C:-Thermal diffusivity to mass diffusivity

D:-thermal diffusivity to momentum diffusivity

Correct Answer:- Option-B

Question52:-Which one of the following statements is true with regards to the percentage saturation (P.S) and relative saturation (R.S) ?

A:-P.S = R.S

B:-P.S > R.S

C:-P.S < R.S

D:-P.S and R.S are not inter related

Correct Answer:- Option-C

Question53:-The feed to a binary distillation column has 40 mole% vapour and 60 mole% liquid. Then the slope of the q-line in the McCabe-Thiele plot is

A:--1.5

B:--0.6

C:-0.6

D:-1.5

Correct Answer:- Option-A

Question54:-1000 kg of wet solids are to be dried from 60% to 20% moisture (by weight). The mass of moisture removed in kg is

A:-100 kg

B:-200 kg

C:-500 kg

D:-400 kg

Correct Answer:- Option-C

Question55:-`` When a multistage try tower uses a minimum reflux ratio it implies ?

A:-infinite trays and maximum reboiler heat load
B:-minimum trays and minimum reboiler heat load
C:-infinite trays and minimum reboiler heat load
D:-minimum trays and maximum reboiler heat load
Correct Answer:- Option-A

Question56:-The absorption factor is defined as
A:-mG/L
B:-mL/G
C:-L/mG
D:-LG/m
Correct Answer:- Option-C

Question57:-Mass transfer coefficient, k according to penetration theory various with mass diffusivity as
A:-`D^(0.5)`
B:-D
C:-1/D
D:-`D^(1.5)`
Correct Answer:- Option-A

Question58:-Size reduction of coarse hard solids using a crusher is accomplished by
A:-Attrition
B:-Compression
C:-Cutting
D:-Impact
Correct Answer:- Option-B

Question59:-Sticky materials are transported by
A:-Apron conveyor
B:-Screw conveyor
C:-Belt conveyor
D:-Hydraulic conveyor
Correct Answer:- Option-B

Question60:-A filtration is conducted at constant pressure to recover solids from dilute slurry. To reduce the time of filtration, the solids concentration in the feed slurry is increased by evaporating half the solvent. If the resistance of the filter medium is negligible, the filtration time will be reduced by a factor of
A:-1
B:-2
C:-4
D:-8
Correct Answer:- Option-C

Question61:-The gas phase reaction 2 A `->` B is carries out in an isothermal plug flow reactor. The feed consists of 80 mole% A and 20 mole% inert. If the conversion of A at the reactor exit is 50% then `C_(A)//C_(Ao)` at the outlet of the reactor is
A:-2/3
B:-5/8
C:-1/3
D:-3/8
Correct Answer:- Option-B

Question62:-The reaction 2A + B `->` 2C occurs on a catalyst surface. The reactants A and B diffuse to the catalyst surface and get converted completely to the product C, which diffuses back. The steady state molar fluxes of A, B and C are related by
A:-`N_(A)` = `2N_(B)` = `N_(C)`
B:-`N_(A)` = `-1//2N_(B)` = `-N_(C)`
C:-`N_(A)`= `2N_(B)` = `-N_(C)`
D:-`N_(A)` = `-1//2N_(B)` = `N_(C)`
Correct Answer:- Option-C

Question63:-Overall order of reaction for which rate constant has units of `(mol//L)^(-3//2) sec^(-1)` is
A:--3/2
B:-1/2
C:-3/2
D:-5/2
Correct Answer:- Option-D

Question64:-The rate constant of a reaction depends upon

A:-time
B:-temperature
C:-weight
D:-mass
Correct Answer:- Option-B

Question65:-For a first order isothermal catalytic reaction A `->` P, occurring in an infinitely long cylindrical pore, the relationship between effectiveness factor, ε, and Thiele modulus, φ, is
A:-ε = 1/φ `^2`
B:-ε = φ
C:-ε = 1
D:-ε = 1/φ
Correct Answer:- Option-C

Question66:-For a first order isothermal chemical reaction in a porous catalyst, the effectiveness factor is 0.3. The effectiveness factor will increase if the
A:-catalyst size is reduced or the catalyst diffusivity is reduced
B:-catalyst size is reduced or the catalyst diffusivity is increased
C:-catalyst size is increased or the catalyst diffusivity is reduced
D:-catalyst size is increased or the catalyst diffusivity is increased
Correct Answer:- Option-B

Question67:-Static characteristics of an instrument is
A:-response
B:-drift
C:-dynamic error
D:-time lag
Correct Answer:- Option-B

Question68:-U-tube type manometer is
A:-half order system
B:-second order system
C:-zero order system
D:-first order system
Correct Answer:- Option-B

Question69:-Bimetallic thermometers are used to measure the temperature in the range of
A:--20° to 1600°C
B:-300° to 1100°C
C:-800° to 2000°C
D:--20° to 300°C
Correct Answer:- Option-D

Question70:-Gas chromatography is used for measurement of
A:-temperature
B:-pressure
C:-concentration
D:-flow rate
Correct Answer:- Option-C

Question71:-Styrene - Butadiene rubber is commercially manufactured by
A:-bulk polymerisation
B:-suspension polymerisation
C:-solution polymerisation
D:-emulsion polymerisation
Correct Answer:- Option-B

Question72:-Triple superphosphate is manufactured by reacting
A:-Phosphate rock with phosphoric acid
B:-Phosphate rock with sulphuric acid
C:-Phosphate rock with nitric acid
D:-Ammonium phosphate with phosphoric acid
Correct Answer:- Option-A

Question73:-In petroleum refining, the process used for conversion of hydrocarbons to aromatics is
A:-catalytic cracking
B:-catalytic reforming
C:-hydro treating

D:-alkylation

Correct Answer:- Option-B

Question74:-One of the steps during refining of cane sugar consists of addition of hydrated lime to the sugar syrup followed by carbonation of the resulting solution. The purpose of this step is to

A:-adjust the pH of the syrup

B:-remove the colouring matter from the syrup

C:-reduce the viscosity of the syrup

D:-improve the rate of crystallization of sugar

Correct Answer:- Option-A

Question75:-Which of the following fine dust removal equipment is the most efficient ?

A:-bag filter

B:-scrubber

C:-electrostatic precipitator

D:-cyclone separator

Correct Answer:- Option-C

Question76:-The biological decomposition of organic substances in waste controlled conditions is called

A:-incineration

B:-biological oxidation

C:-composting

D:-none of these

Correct Answer:- Option-C

Question77:-The resistance of water to the passage of light through it is measure of the

A:-turbidity

B:-colour

C:-hardness

D:-dissolved gases

Correct Answer:- Option-A

Question78:-In a shell and tube heat exchanger, the 'tube pitch' is defined as the

A:-O.D. of the tube for square pitch

B:-shortest distance between two adjacent tube holes

C:-shortest centre to centre distance between adjacent tubes

D:-none of these

Correct Answer:- Option-C

Question79:-Spherical shaped pressure vessel is considered to be the most ideal, because

A:-withstand higher pressure

B:-fabrication very easy

C:-designed without wind load considerations

D:-supported very easily

Correct Answer:- Option-A

Question80:-Generally, no corrosion allowance in wall thickness of a part is required, if the thickness is more than

A:-5 mm

B:-10 mm

C:-20 mm

D:-30 mm

Correct Answer:- Option-D

Question81:-For the same compression ratio and heat input which cycle has maximum thermal efficiency ?

A:-Diesel cycle

B:-Otto cycle

C:-Dual cycle

D:-None of these

Correct Answer:- Option-B

Question82:-A circular disc rolls on the inside surface of a base circle. The radius of the circular disc is equal to half the radious of the base circle. The locus of a point on the circumference of the disc is

A:-Straight line

B:-Epicycloid

C:-Hypocycloid

D:-Involute

Correct Answer:- Option-A

Question83:-When a belt is stationary, it is subjected to some tension known as initial tension. The value of this tension is equal to the

A:-Tension on the tight side of the belt

B:-Tension on the slack side of the belt

C:-Some of tension in the tight side and slack side

D:-Average tension of the tight side and slack side of the belt

Correct Answer:- Option-D

Question84:-The tenacity or hardness with which the bond holds the cutting point or abrasives in place of a grinding wheel is defined by the term ?

A:-Structure

B:-Grit size

C:-Grain size

D:-Grade

Correct Answer:- Option-D

Question85:-Two geometrically similar pump are run at the same speed. One pump lifts water at the rate of 20 litres per second against a head of 15 meters. The head of the other pump in metres to deliver half the discharge is

A:-4.73

B:-0.5

C:-9.45

D:-2.38

Correct Answer:- Option-C

Question86:-The phase difference between the input voltage and output voltage in a common base configuration is _____

A:-0°

B:-90°

C:-180°

D:-270°

Correct Answer:- Option-A

Question87:-An ac supply of 200 V is applied to a half-wave rectifier circuit through a 10 : 1 turns ratio transformer, the Peak Inverse voltage of the diode is _____, assume the diode to be an ideal.

A:-14.14 V

B:-20 V

C:-28.28 V

D:-56.56 V

Correct Answer:- Option-C

Question88:-The slew rate of an Op-amp is 2V/`mu` s. The closed loop voltage gain when the input signal various by 0.5 V in 10`mu`s is _____

A:-2

B:-10

C:-20

D:-40

Correct Answer:- Option-D

Question89:-At 100% modulation in AM, the power in each side band is _____ of that of carrier.

A:-50%

B:-25%

C:-33.3%

D:-66.6%

Correct Answer:- Option-B

Question90:-The resistance of an ideal voltmeter is _____

A:-Zero

B:-Low

C:-High

D:-Infinite

Correct Answer:- Option-D

Question91:-The product of the characteristic roots of a square matrix A is

A:-0

B:-1

C:-|A|

D:-|A-I|

Correct Answer:- Option-C

Question92:-The complete solution of `(D^(2) + a^(2))` y = sin ax is

A:-`Ae^(ax) + Be^(-ax)`

B:-A cos ax + B sin ax
C:-A cos ax + B sin ax + `(sinax)/(2a^2)`
D:-none of these
Correct Answer:- Option-D
Question93:-The value of m if F = `e^(mx)` ((2y + 3z) i + 2j + 3k) is irrotational is
A:-0
B:-1
C:--1
D:-2
Correct Answer:- Option-B
Question94:-The image of the straight line y = k under the mapping w = sinz is
A:-stright line
B:-parabola
C:-ellipse
D:-hyperbola
Correct Answer:- Option-C
Question95:-The Laplace transform of `e^(at)` sinhat is
A:-`(a)/((s^2 - 2as + 2a^2))`
B:-`(a)/((s^2 - 2as))`
C:-`(s)/((s^2 + 2as + 2a^2))`
D:-`(s)/((s^2 + 2as))`
Correct Answer:- Option-B
Question96:-The 8-bit encoding format used to store data in a computer is
A:-ASCII
B:-EBCDIC
C:-ANCI
D:-USCII
Correct Answer:- Option-B
Question97:-SIMD represents an organization that
A:-refers to a computer system capable of processing several programs at the same time
B:-represents oprganization of single computer containing a control unit, processor unit and a memory unit
C:-includes many processing units under the supervision of a common control unit
D:-none of the above
Correct Answer:- Option-C
Question98:-#include<stdio.h>

```
 main()
{
    int x = 0;
    for (; ;)
      {
         if (x++ == 4) break;
         continue;
        }
      printf("x=%d\n", x);
    }
```

What will be printed when the above code is executed ?
A:-x = 0
B:-x = 1
C:-x = 4
D:-x = 5
Correct Answer:- Option-D
Question99:-How can one convert numbers to strings ?
A:-Using atoi()
B:-Using printf()
C:-Using sprint()
D:-Using nsprintf()
Correct Answer:- Option-C

Question100:-What will be the data type returned for the following function ?

```
int func()
  {
   return(double)(char)5.0;
    }
```

A:-char

B:-int

C:-double

D:-multiple type-casting in return is illegal

Correct Answer:- Option-B