PROVISIONAL ANSWER KEY

Question1:-Pouranadam weekly was started from _____

A:-Ernamkulam

B:-Kottayam

C:-Kozhikode

D:-Thrissur

Correct Answer:- Option-A

Question2:-Roopa Bhadratha Vaadam was related to _____

A:-Edasseri

B:-G. Sankara Kuruppu

C:-Changampuzha

D:-Mundasseri

Correct Answer:- Option-C

Question3:-In which year Yahooda-Memmorial was submitted to Kochi ruler ?

A:-1857

B:-1817

C:-1891

D:-1835

Correct Answer:- Option-B

Question4:-Chief justice of Kerala High Court

A:-M. M. Sandanu Gouder

B:-Thottathil B. Radhakrishnan

C:-Navaneeti Prasad Sing

D:-Kamal Pasha

Correct Answer:- Option-C

Question5:-Who inaugurated the Administrative block of Kerala Legislative Assembly ?

A:-B. N. Rao

B:-Balram Jhakkar

C:-Alladi Krishnaswami Ayer

D:-B. L. Mithar

Correct Answer:- Option-B

Question6:-Who authored the series of articles entitled India's Disintegrating Democracy ?

A:-Ramachandra Guha

B:-K. C. Pant

C:-S. S. Harrison

D:-Neville Maxwell

Correct Answer:- Option-D

Question7:-At what time the first session of the constituent assembly of Indian began ?

A:-9 a.m.

B:-9.30 a.m.

C:-10.30 a.m.

D:-11 a.m.

Correct Answer:- Option-D

Question8:-Who tried to popularise the concept Partyless Democracy ?

A:-Gandhiji

B:-A. P. J. Abdul Kalam

C:-Jayaprakash Narayanan

D:-Anna Hazare

Correct Answer:- Option-C

Question9:-Samagra Mahila Agadi was an organization in _____

A:-Karnataka

B:-Maharashtra

C:-Gujarath

D:-Uttarpradesh

Correct Answer:- Option-B

Question10:-Antyodaya Train is running between the stations

A:-Ernamkulam-Howra

B:-New Delhi-Agra

C:-Mumbai-Pune

D:-Kolkata-Delhi

Correct Answer:- Option-A

Question11:-If the equation y + z = -ax, z + x = -by, x + y = -cz have non-trivial solutions, then $\frac{1}{1-a}$ + $\frac{1}{1-b}$ + $\frac{1}{1-c}$ = _____

A:-1

B:-2

C:--1

D:--2

Correct Answer:- Option-C

Question12:-Equations having a common solutions are called

A:-Linear equations

B:-Simultaneous equations

C:-Homogeneous equations

D:-Non-homogeneous equations

Correct Answer:- Option-B

Question13:-If the term free from x in the expansion of $(\sqrt{x} - \frac{k}{x^2})^{10}$ is 405, value of k is

A:-9

B:-5

C:-0

D:-3

Correct Answer:- Option-D

Question14:-If A and B are the coefficients of x^n in the expansion of $(1+x)^{2n}$ and $(1+x)^{2n-1}$ respectively, then $\frac{A}{B}$ equals

A:-1

B:-2

C:-$\frac{1}{2}$

D:-$\frac{1}{n}$

Correct Answer:- Option-B

Question15:-Period of $3\cos(\frac{x}{3})$ is

A:-Π

B:-2Π

C:-3Π

D:-6Π

Correct Answer:- Option-D

Question16:-If tan $\theta + \sec\theta = e^x$ then cos θ equals

A:-$\frac{e^x + e^{-x}}{2}$

B:-$\frac{2}{e^x + e^{-x}}$

C:-$\frac{e^x - e^{-x}}{2}$

D:-$\frac{e^x - e^{-x}}{e^x + e^{-x}}$

Correct Answer:- Option-A

Question17:-For some real number k, the graph of y = (k + 1) x + 8 passes through (2, 6). What is the slope?

A:--2

B:-1

C:--1

D:-2

Correct Answer:- Option-C

Question18:-Maximum value of $\frac{\log x}{x}$ will be

A:-e

B:-$\frac{1}{e}$

C:-$e^{1/e}$

D:-`e^(2)`

Correct Answer:- Option-A

Question19:-`int_-2^2|x|dx` is

A:-0

B:-8

C:--2

D:-4

Correct Answer:- Option-D

Question20:-Solution of x`dy/dx` =y+`x^(2)` is

A:-y = log x+ `x^(2)/2` + a

B:-y = `x^(3)/3` + `a/x`

C:-y = `x^(2)` + ax

D:-y=`(x^(2))/(3)`+`a/x`

Correct Answer:- Option-C

Question21:-Find the bending moment at the mid-span of a beam of length l, carrying a uniformly distributed load of w kg per unit length.

A:-wl

B:-`(wl)/(2)`

C:-`(wl^(2))/(8)`

D:-w

Correct Answer:- Option-C

Question22:-A reinforced cement concrete column is said to be made of

A:-Isotropic material

B:-Heterogeneous material

C:-Homogeneous material

D:-All the above

Correct Answer:- Option-B

Question23:-Define the point of contra-flexure

A:-Point of change in sign of bending moment

B:-Point of zero shear

C:-Point of maximum bending moment

D:-None of the above

Correct Answer:- Option-A

Question24:-A beam strongest in flexure is one which has

A:-Maximum section modulus

B:-Maximum bending stress

C:-Maximum moment of inertia

D:-All the above

Correct Answer:- Option-A

Question25:-Failure occurs in short columns by

A:-Direct compression only

B:-Pure buckling

C:-Combination of buckling and direct compression

D:-All the above

Correct Answer:- Option-A

Question26:-In a beam of triangular cross section, the maximum shear stress occurs at

A:-Extreme fibres

B:-Anywhere along the depth

C:-At neutral axis

D:-At half the depth

Correct Answer:- Option-D

Question27:-Determine the dimensions of joist of a timber for span 8 m to carry a brick wall 200 mm thick and 5 m high, if the density of brick wall is 1850 kg/`m^(3)` and the maximum permissible stress is limited of7.5 MN/`m^(2)`. Given that the depth of joist is twice the width.

A:-307 mm `xx` 614 mm

B:-105 mm `xx` 210 mm

C:-350 mm `xx` 700 mm

D:-260 mm `xx` 520 mm

Correct Answer:- Option-A

Question28:-A beam consists of a symmetrical rolled steel joist. The beam is simply supported at its ends and carries a point load at the centre of the span. If the maximum stress due to bending is 140 MPA, find the ratio of depth of the beam section to span in order that the central deflection may not exceed $\frac{1}{480}$ of the span.

    A:-1.023

    B:-0.056

    C:-0.026

    D:-1.256

    Correct Answer:- Option-B

Question29:-The Brinell Hardness Number (BHN) of copper aluminium is

    A:-Above 180

    B:-60 to 180

    C:-20 to 60

    D:-Less than 20

    Correct Answer:- Option-C

Question30:-A timber beam 16 cm wide and 20 cm deep is to be reinforced by bolting on two steel flitches each 16 cm `xx` 1 cm in section. Find the moment of resistance, when
a) The flitches are attached symmetrically at the top and bottom and
b) The flitches are attached symmetrically at the sides.
Allowable stress in timber is 6MN/`m^(2)`. What is the maximum stress in steel in each case ?
Take $E_{(s)} = 20E_{(W)}$, where $E_{(s)}$ and $E_{(w)}$ are Young's moduli for steel and wood.

    A:-50 kNm, 30 kNm

    B:-20 kNm, 56 kNm

    C:-48.8 kNm, 14.6 kNm

    D:-12 kNm, 28 kNm

    Correct Answer:- Option-C

Question31:-The type of foundation generally suitable for buildings on liquefiable soil deposit is

    A:-Well foundation

    B:-Raft foundation

    C:-Spread footing

    D:-Pile foundation

    Correct Answer:- Option-D

Question32:-The maximum depth of pneumatic caisson is usually limited to

    A:-10 m

    B:-20 m

    C:-40 m

    D:-90 m

    Correct Answer:- Option-C

Question33:-Elongation produced in a bar of density `rho`, length l and Young's modulus E due to its self-weight.

    A:-`(9.81rhol^(2))/(2E)`

    B:-`(rhol^(2))/(2E)`

    C:-`(0.81rhol^(2))/(2N)`

    D:-`(9.81rhol)/(2E)`

    Correct Answer:- Option-A

Question34:-A simply supported beam of length l is subjected to load varying linearly from zero at one end to w per unit length at the other end. Find the point where the deflection is maximum from left end.

    A:-0.250lb

    B:-0.326l

    C:-0.519l

    D:-None of the above

    Correct Answer:- Option-C

Question35:-A cantilever beam of length l is subject to uniformly distributed load of w per unit length for the entire span. Find the expression for maximum deflection.

    A:-`(wl)/(2EI)`

    B:-`(wl^(4))/(8EI)`

    C:-`(wl^(3))/(6EI)`

    D:-`(wl^(2))/(16EI)`

    Correct Answer:- Option-B

Question36:-Wrought iron contains carbon upto

    A:-0.25%

    B:-1.0%

C:-1.5%

D:-2.0%

Correct Answer:- Option-A

Question37:-Sand stone is

A:-Sedimentary rock

B:-Metamorphic rock

C:-Igneous rock

D:-Volcanic rock

Correct Answer:- Option-A

Question38:-If the pitch is 6 cm and rivet value is 4 tonnes, the number of rivets required for a riveted connection carrying an eccentric load of 15 tonnes at a distance of 30 cm from the centre line, is

A:-6

B:-8

C:-10

D:-12

Correct Answer:- Option-B

Question39:-A pitot tube is used to measure

A:-Pressure

B:-Difference in pressure

C:-Velocity of flow

D:-None of these

Correct Answer:- Option-C

Question40:-The rate of accumulation of sludge in septic tanks is recommended as

A:-30 litres/person/year

B:-25 litres/person/year

C:-30 litres/person/month

D:-25 litres/person/month

Correct Answer:- Option-A

Question41:-For M 150 mix concrete, according to I.S. specifications, local bond stress, is

A:-5 kg/cm^{2}

B:-10 kg/cm^{2}

C:-15 kg/cm^{2}

D:-20 kg/cm^{2}

Correct Answer:- Option-B

Question42:-The measure to remove water logging of land, is

A:-To reduce percolation from canals and water courses

B:-To increase outflow from the ground water reservoir

C:-Both 1) and 2)

D:-Neither 1) nor 2)

Correct Answer:- Option-C

Question43:-Reynold number is the ratio of initial force and

A:-Viscosity

B:-Elasticity

C:-Gravitational force

D:-Surface tension

Correct Answer:- Option-A

Question44:-The settling velocity of the particles larger than 0.06 mm in a settling tank of depth 2.4 is   0.33 m per sec. The detention period recommended for the tank, is

A:-30 minutes

B:-1 hour

C:-1 hour and 30 minutes

D:-2 hours

Correct Answer:- Option-D

Question45:-The amount of oxygen consumed by the aerobic bacteria which cause the aerobic biological decomposition of sewage, is known

A:-Bio-Chemical Oxygen Demand (B.C.O.D.)

B:-Dissolved Oxygen (D.O.)

C:-Chemical Oxygen Demand (C.O.D.)

D:-None of these

Correct Answer:- Option-B

Question46:-In a liquid limit test, the moisture content at 10 blows was 70% and that at 100 blows was 20%. The liquid limit of the soil, is
    A:-35%
    B:-50%
    C:-65%
    D:-None of these
    Correct Answer:- Option-C
Question47:-The specific yield of soil depends upon
    A:-Compaction of stratum
    B:-Distribution of pores
    C:-Shape and size of particles
    D:-All the above
    Correct Answer:- Option-D
Question48:-'Loess' is silty clay formed by the action of
    A:-Water
    B:-Glacier
    C:-Wind
    D:-Gravitational force
    Correct Answer:- Option-C
Question49:-Soils containing organic matters
    A:-Are of spongy nature
    B:-Swell with decrease of moisture
    C:-Shrink with increase of moisture content
    D:-None of these
    Correct Answer:- Option-A
Question50:-A direct shear test possesse the following disadvantage
    A:-A relatively thin thickness of sample permits quick drainage
    B:-A relatively thin thickness of sample permits quick dissipation of pore pressure developed during the test
    C:-As the test progresses the area under shear, gradually changes
    D:-None of these
    Correct Answer:- Option-C
Question51:-The neutral stress in a soil mass is
    A:-Force per neutral area
    B:-Force per effective area
    C:-Stress taken up by the pore water
    D:-Stress taken up by solid particles
    Correct Answer:- Option-C
Question52:-When a canal is carried over a natural drainage, the structure provided, is known as
    A:-Syphon
    B:-Aqueduct
    C:-Super passage
    D:-Syphon-aqueduct
    Correct Answer:- Option-B
Question53:-Groynes are generally built
    A:-Perpendicular to the bank
    B:-Inclined up stream up to `30`°
    C:-Inclined down stream up to `30`°
    D:-All the above
    Correct Answer:- Option-B
Question54:-The sinuosity of a meander is the ratio of
    A:-Meander length and the width of meander
    B:-Meander length and half width of the river
    C:-Curved length and the straight distance
    D:-None of these
    Correct Answer:- Option-C
Question55:-Pick up the correct statement from the following :
    A:-Landing speed is directly proportional to the wing loading
    B:-Wing loading remaining constant, the take off distance is directly proportional to the power loading
    C:-Neither 1) nor 2)

D:-Both 1) and 2)

Correct Answer:- Option-D

Question56:-For the movement of vehicles at an intersection of two roads, without any interference, the type of grade separator generally preferred to, is

A:-Delta

B:-Trumpet

C:-Diamond inter charges

D:-Clover leaf

Correct Answer:- Option-D

Question57:-In case of railways,

A:-A detour round the hill is preferred

B:-A open cut is preferred

C:-Tunnelling is preferred

D:-All the above

Correct Answer:- Option-C

Question58:-Which of these are ingredients of cement ?

A:-Lime

B:-Sulphur

C:-Magnesia

D:-All the above

Correct Answer:- Option-D

Question59:-The time of setting of cement paste depends on

A:-Temperature at which cement paste is allowed to set

B:-Percentage of water mixed to cement in making paste

C:-Humidity at which setting is allowed

D:-All the above

Correct Answer:- Option-D

Question60:-Portion of structure between the surface surrounding ground and the surface of the floor immediately above the ground

A:-Foundation

B:-Sill

C:-Plinth

D:-None of the above

Correct Answer:- Option-C

Question61:-Slump test is carried out in concrete to have rough estimate of

A:-Strength

B:-Workability

C:-Durability

D:-None of the above

Correct Answer:- Option-B

Question62:-Recommended slump for concrete for road construction

A:-70-80 mm

B:-20-40 mm

C:-5-15 mm

D:-90-100 mm

Correct Answer:- Option-B

Question63:-Windows that are hinged at ends and may swing out or in like doors are called

A:-Folding window

B:-Casement window

C:-Pivoted window

D:-Double hung window

Correct Answer:- Option-B

Question64:-Common rafters shorten in length which runs from a hip to the eaves or from a ridge to valley are called

A:-Crown rafter

B:-Principal rafter

C:-Jack rafter

D:-Valley rafter

Correct Answer:- Option-C

Question65:-Find the Reduced Level (RL) of a point having Intermediate Sight (IS) value as 0.825. The height of instrument of a dumpy level is 100.665

A:-101.490

B:-0.000

C:-99.840

D:-100.00

Correct Answer:- Option-C

Question66:-Pile that has an enlarged base of mushroom shape, which gives the effect of spread footing are called

A:-Simplex Standard Pile

B:-Franki Pile

C:-Raymond Step Pile

D:-Swage Pile

Correct Answer:- Option-B

Question67:-Consider the following statements : A simply supported beam is subjected to a couple some where in the span. It would produce

1) A rectangular SF diagram

2) Parabolic BM diagram

3) Both -ve and +ve BMs which are maximum at the point of application of the couple.

Of these statements :

A:-1), 2) and 3) correct

B:-1) and 2) are correct

C:-2) and 3) are correct

D:-1) and 3) are correct

Correct Answer:- Option-D

Question68:-The components of strain tensor at a point in the plane strain case can be obtained by measuring longitudinal strain in following directions

A:-Along any two arbitrary directions

B:-Along any three arbitrary directions

C:-Along two mutually orthogonal directions

D:-Along any arbitrary direction

Correct Answer:- Option-B

Question69:-A clayey soil has a maximum dry density of 16 kN/m^3 and optimum moisture content of 12%. A contractor during the construction of core of an earth dam obtained the dry density 15.2 kN/m^3 and water content 11%. This construction is acceptable because

A:-The density is less than the maximum dry density and water content is on dry side of optimum

B:-The compaction density is very low and water content is less than 12%

C:-The compaction is done on the dry side of the optimum

D:-Both the dry density and water content of the compacted soil are within the desirable limits

Correct Answer:- Option-D

Question70:-IS : 1343 - 1980 limits the minimum characteristic strength of pre-stressed concrete for post tensioned works and pretension work as

A:-25 MPa, 30 MPa respectively

B:-25 MPa, 35 MPa respectively

C:-30 MPa, 35 MPa respectively

D:-30 MPa, 40 MPa respectively

Correct Answer:- Option-D

Question71:-Root time method is used to determine

A:-T, time factor

B:-$c_{(v)}$, coefficient of consolidation

C:-$a_{(v)}$, coefficient of compressibility

D:-$m_{(v)}$, coefficient of volume compressibility

Correct Answer:- Option-B

Question72:-Four columns of building are to be located within a plot size of 10 m × 10 m. The expected load on each column is 400 kN. Allowable bearing capacity of soil deposit is 100 kN/m. The type of foundation to be used is

A:-Isolated foundation

B:-Raft foundation

C:-Pile foundation

D:-Combined foundation

Correct Answer:- Option-A

Question73:-The target mean strength $f_{(cm)}$ for concrete mix design obtained from the characteristic strength $f_{(ck)}$ and standard deviation σ, as defined in IS : 456-2000, is

A:-$f_{(ck)}$ + 1.35 σ

B:-$f_{(ck)}$ + 1.45 σ

C:-$f_{ck} + 1.55 σ$

D:-$f_{ck} + 1.65 σ$

Correct Answer:- Option-D

Question74:-The modulus of elasticity, E = 5000 $\sqrt{f_{ck}}$ where f_{ck} is the characteristic compressive strength of concrete, specified in IS : 456-2000 is based on

A:-Tangent modulus

B:-Initial tangent modulus

C:-Secant modulus

D:-Section modulus

Correct Answer:- Option-B

Question75:-As per Indian Standard Soil Classification System (IS : 1498-1970), an expression for A-line is

A:-$I_p = 0.73 (w_L - 20)$

B:-$I_p = 0.70 (w_L - 20)$

C:-$I_p = 0.73 (w_L - 10)$

D:-$I_p = 0.50 (w_L - 10)$

Correct Answer:- Option-A

Question76:-The dominating microorganisms in an activated sludge process reactor are

A:-Aerobic heterotrophs

B:-Anaerobic heterotrophs

C:-Autotrophs

D:-Phototrophs

Correct Answer:- Option-A

Question77:-For sub-critical flow in an open channel, the control section for gradually varied flow profile is

A:-At the downstream end

B:-At the upstream end

C:-At the both ends

D:-At any intermediate section

Correct Answer:- Option-A

Question78:-The partial factor of safety for concrete as per IS : 456-2000 is

A:-1.50

B:-1.15

C:-0.87

D:-0.446

Correct Answer:- Option-A

Question79:-Select the strength parameter of concrete used in design of plain jointed cement pavement from the following choices

A:-Tensile strength

B:-Compressive strength

C:-Flexural strength

D:-Shear strength

Correct Answer:- Option-C

Question80:-As per IS 800 : 2007 the cross section in which extreme fibre can reach the yield stress but cannot develop the plastic moment of resistance due to local buckling is classified as

A:-Shear section

B:-Bending section

C:-Plastic section

D:-Semi-compact section

Correct Answer:- Option-D

Question81:-With rise in temperature, the resistance of metal conductors

A:-Increases

B:-Decreases

C:-Remains unchanged

D:-Decreases first and then remains constant

Correct Answer:- Option-A

Question82:-Calculate the resistance required for an electric heater to produce 1 kW when connected to   220 V supply

A:-4.5 Ω

B:-48.4 Ω

C:-220 Ω

D:-7.5 Ω

Correct Answer:- Option-B

Question83:-The power factor of the following will be unity
    A:-Capacitor
    B:-Resistor
    C:-Inductor
    D:-Both 1) and 3)
    Correct Answer:- Option-B
Question84:-In an R-L-C series circuit, resonance occurs when the supply voltage and current have a phase difference of,
    A:-90º
    B:-45º
    C:-180º
    D:-0º
    Correct Answer:- Option-D
Question85:-The earth pit is filled with alternate layers of salt and charcoal in order to
    A:-Increase earth resistance
    B:-Keep earth resistance constant
    C:-Decrease earth resistance
    D:-Prevent corrosion
    Correct Answer:- Option-C
Question86:-Among the following for which bench mark, the reduced levels will not be already determined or assigned before a particular survey ?
    A:-GTS Bench mark
    B:-Permanent Bench mark
    C:-Temporary Bench mark
    D:-Arbitrary Bench mark
    Correct Answer:- Option-C
Question87:-Which among the following is not suitable for one brick wall ?
    A:-English Bond
    B:-Single Flemish Bond
    C:-Double Flemish Bond
    D:-Header Bond
    Correct Answer:- Option-B
Question88:-Which among the following not correct ?
    A:-Combined footing is preferred if two individual footings overlap
    B:-Combined footing is preferred when bearing capacity of soil is less, requiring more area for individual footing
    C:-Combined footing is preferred when footings are constructed near boundary of plot
    D:-Combined footing is preferred when the depth of footing is very large compared with width of footing
    Correct Answer:- Option-D
Question89:-Among the following types of aggregates, of which type the particles are of the same size ?
    A:-Well graded
    B:-Good graded
    C:-Poorly graded
    D:-Gap graded
    Correct Answer:- Option-C
Question90:-Which test among the following is used to determine the workability of concrete ?
    A:-Compacting Factor Test
    B:-Test for Fineness
    C:-Test for standard consistency
    D:-Vicat apparatus test
    Correct Answer:- Option-A
Question91:-Fins are provided over engine cylinders in scooters for
    A:-Higher strength of cylinder
    B:-Better cooling
    C:-Higher efficiency
    D:-Higher power output
    Correct Answer:- Option-B
Question92:-Effect of detonation is NOT to
    A:-Increase heat transfer
    B:-Increase carbon deposits
    C:-Ignite charge before passage of a spark

D:-Increase engine efficiency

Correct Answer:- Option-D

Question93:-The advantage of a CI engine is

A:-Better suited for super charging

B:-Less noise

C:-Easy starting

D:-Low weight for a given power output

Correct Answer:- Option-A

Question94:-The function of a surge tank is to

A:-Store incoming water to increase head of water

B:-Allow turbine to be placed above tail water level

C:-Help reduce 'water hammer' effect

D:-Convert potential energy to mechanical/electrical energy

Correct Answer:- Option-C

Question95:-Identify the element of a nuclear power plant.

A:-Flat plate collector

B:-Penstock

C:-Inter cooler

D:-Moderator

Correct Answer:- Option-D

Question96:-The PIV of a diode in a centre-tapped full wave rectifier is _____ the PIV of diode in the bridge rectifier.

A:-Half

B:-Equal to

C:-Less than

D:-Double

Correct Answer:- Option-D

Question97:-The 8051 micro-controller has a

A:-16 bit processor unit

B:-8 bit processor unit

C:-16 bit accumulator

D:-Four buses

Correct Answer:- Option-B

Question98:-Choose the correct statement.

A:-CDMA is a handset based standard

B:-GSM uses a variant of FDMA

C:-3G is packet switched

D:-CDMA and GSM devices can be inter changed

Correct Answer:- Option-A

Question99:-Identify their correct statement from the following

A:-The SMPS is a dissipative regulator

B:-The components of an SMD can be placed on both sides of the circuit board

C:-7805 IC is a fixed, linear voltage regulator

D:-The SPSI switch is a very common form of momentary switch

Correct Answer:- Option-A

Question100:-Which of the following is not a health hazard of e-waste ?

A:-Lead

B:-Cadmium

C:-Silicon

D:-Chromium

Correct Answer:- Option-C