Sr No.	PhD Civil Engineering
1	Find the missing term in the series: 3, 20, 63, 144, 275,?
Alt1	354
Alt2	468
Alt3	548
Alt4	554

2	Choose word from the given options which bears the same relationship to the third word, as the first two bears: Anaemia: Blood :: Anarchy:?
Alt1	Lawlesness
Alt2	Government
Alt3	Monarchy
Alt4	Disorder

3	Teeth is related to Grit in the same way as Fist is related to…………?……….
Alt1	Blow
Alt2	Hand
Alt3	Open
Alt4	Clench

4	Select the lettered pair that has the same relationship as the original pair of words: Reproof: Scold
Alt1	Respite: Spite
Alt2	Romantic: Strong
Alt3	Salient: Prominent
Alt4	Chastise: Erring

5	Choose the alternative, which is similar to the given words: Bleat : Bray : Grunt
Alt1	Bark
Alt2	Croak
Alt3	Cry
Alt4	Scream

6	Spot the defective segment from the following:
Alt1	I wish
Alt2	I have a car
Alt3	to go shopping
Alt4	in the rain

7	Choose the meaning of the idiom/phrase from among the options given: Out of sorts
Alt1	unwell
Alt2	irrelevant
Alt3	in disorder
Alt4	out of love

8	The rowdy was at last done -------.
Alt1	over
Alt2	off
Alt3	away
Alt4	away with

9	Choose the option closest in meaning to the given word: BUCOLIC
Alt1	rustic
Alt2	utopian
Alt3	peaceful
Alt4	noisy

10	Choose the antonymous option you consider the best: CALLOW
Alt1	immature
Alt2	green
Alt3	clumsy
Alt4	veteran

11	If the seventh day of a month is three days earlier than Friday, what day will it be on the nineteenth day of the month ?
Alt1	Sunday
Alt2	Monday
Alt3	Wednesday
Alt4	Friday

12	Water is related to Ocean in the same way as Snow is related to ………
Alt1	Peaks
Alt2	Hail
Alt3	Glacier
Alt4	Mountain

13	A's father's brother's father is D. how is D related to A ?
Alt1	Father
Alt2	Grandfather
Alt3	Uncle
Alt4	Son

14	Find the odd man out:
Alt1	Squash
Alt2	football
Alt3	hockey
Alt4	Cricket

15	In a certain code language, if CRICKET is coded as 3923564, ROCKET is coded as 913564 and KETTLE is coded as 564406, then how is LITTLE coded in that language ?
Alt1	024406
Alt2	240406
Alt3	20446
Alt4	200446

16	At what angles are he hands of a clock inclined at 20 minutes past 7 ?
Alt1	80 degrees
Alt2	90 degrees
Alt3	100 degrees
Alt4	120 degrees

17	Odd one out: 2,4,6,8
Alt1	2
Alt2	4
Alt3	6
Alt4	8

18	Which is smallest:
Alt1	Quarter of 140
Alt2	Double of 4*4
Alt3	7*5
Alt4	Half of 72

19	What is the next alphabet in the following series Z D X H V L T ?
Alt1	Q
Alt2	N
Alt3	P
Alt4	O

20	How many times is the abbrevations FB shorter than the word FACEBOOK?
Alt1	4times
Alt2	3times
Alt3	5times
Alt4	Many

21	Beaufort scale is used to determine:-
Alt1	direction of winds
Alt2	strength of winds
Alt3	height of air-crafts
Alt4	none of these

22	A T-beam behaves as a rectangular beam of a width equal to its flange if its neutral axis:-
Alt1	Remains within the flange
Alt2	coincides with the geometrical centre of the beam

Alt3	remains below the slab
Alt4	none of these

23	The standard length of rail for broad gauge and meter gauge are respectively:-
Alt1	13m and 12m
Alt2	12m and 13m
Alt3	12m and 14 m
Alt4	14m and 12m

24	Consider the following statements related to 'composite mortar': 1. Addition of lime to cement mortar improves its workability. 2. Composite mortar is obtained by adding 10% by weight of cement and mixing with water. 3. Composite mortar is not preferred in tall buildings. 4. Mechanical grinding is essential for developing composite mortar. Which of the above statements are true in this case?
Alt1	2, 3 and 4 only
Alt2	1, 2 and 3 only
Alt3	1, 3 and 4 only
Alt4	1, 2, 3 and 4

25	Coefficient of consolidation of a soil is affected by:-
Alt1	Both permeability and compressibility
Alt2	compressibility
Alt3	Permeability
Alt4	None of the above

26	Which of the following stresses is measured on inclined surface in Mohr's Circle Method?
Alt1	Normal stress
Alt2	Maximum stress
Alt3	Principal stress
Alt4	Tangential stress

27	Shear strength of the soil is a unique function of:-
Alt1	Total stress only
Alt2	Effective stress only
Alt3	Both Effective stress and total stress
Alt4	None of the above

28	In a simply supported beam wooden beam under uniformly distributed load, a hole has to be made in the breadthwise direction at mid-span to provide a pipeline. From structural strength point of view, it would be advisable to have the hole made at:-
Alt1	The bottom
Alt2	¼ depth either from the top or the bottom
Alt3	mid-depth
Alt4	the top

29	Maximum daily traffic capacity of bituminous pavement is:-
Alt1	500 tonnes per day
Alt2	1000 tonnes per day
Alt3	2000 tonnes per day
Alt4	1500 tonnes per day

30	What is the minimum area of tension reinforcement in beams when Fe 415 is used?
Alt1	0.002
Alt2	0.008
Alt3	0.0012
Alt4	0.0015

31	A wall carries an axial load, 12 kN/m and also an eccentric load of 27 kN/m at 72 mm from the central axis of the wall. The equivalent eccentricity e is nearly:-
Alt1	55mm
Alt2	60mm
Alt3	50mm
Alt4	65mm

32	Columns may be made of plain concrete if their unsupported lengths do not exceed their least lateral dimension:-
Alt1	three times
Alt2	five times
Alt3	Two times
Alt4	four times

33	Consider the following forms of water in a hydrated cement paste: 1. Capillary water 2. Chemically combined water 3. Interlayer water 4.Adsorbed water. Which of the above forms of water will, on its/their removal, cause shrinkage of the paste?
Alt1	1, 2 and 3
Alt2	2, 3 and 4
Alt3	1, 3 and 4
Alt4	1, 2 and 4

34	Time factor for a clay layer is:-
Alt1	Directly proportional to permeability of soil
Alt2	A dimensional parameter
Alt3	Independent of thickness of clay layer
Alt4	Inversely proportional to drainage path

35	Ringelmann's scale is used to:-

Alt1	grade density of smoke
Alt2	grade automobile exhaust gas
Alt3	measure CO_2
Alt4	Measure CO

36	As per IRC recommendations, the maximum limit of super elevation for mixed traffic in plain terrain is:-
Alt1	Equal to chamber
Alt2	1 in 10
Alt3	1 in 12.5
Alt4	1 in 15

37	The angle of repose of a soil is the maximum angle which the outer face of the soil mass makes:-
Alt1	With the horizontal
Alt2	with the vertical
Alt3	with the perpendicular to the inclined plane of the soil
Alt4	none of these

38	The percentage of the aggregate of fineness modulus 2.6 to be combined with coarse aggregate of fineness modulus 6.8 for obtaining the aggregate of fineness modulus 5.4 is:-
Alt1	0.3
Alt2	0.5
Alt3	0.6
Alt4	0.4

39	The most efficient traffic signal system is:-
Alt1	simple progressive system
Alt2	alternate system
Alt3	simultaneous system
Alt4	flexible progressive system

40	In the case of an axially loaded column machined for full bearing, the fastenings connecting the column to the base plates through gussets are to be designed for:-
Alt1	Respective erection conditions only
Alt2	100 % of load on the column
Alt3	25 % of the load on the column
Alt4	50 % of the load on the column

41	Largest dimension of a rail is its:-
Alt1	head with
Alt2	foot width
Alt3	height
Alt4	any of the above

42	In a consolidated drained test on a normally consolidated clay, the volume of the soil sample during shear:-
Alt1	Remains constant

Alt2	Decreases
Alt3	Increases
Alt4	First increases and decreases

43	The shear reinforcement in RCC is provided to resist:-
Alt1	Vertical shear
Alt2	horizontal shear
Alt3	diagonal tension
Alt4	diagonal compression

44	The expansion and shrinkage of plywoods are comparatively very low as:-
Alt1	They are held in position by adhesives
Alt2	plies are placed at right angles to each other
Alt3	they are glued under pressure
Alt4	they are prepared from veneers

45	Scientific planning of transportation system and mass transit facilities in cities should be based on:-
Alt1	traffic volume data
Alt2	spot speed data
Alt3	accident data
Alt4	origin and destination data

46	Consider the following statements:1. Modulus of Elasticity of concrete increases with increase in compressive strength of concrete.2. Brittleness of concrete increases with decrease in compressive strength of concrete.3. Shear strength of concrete increase with increase in compressive strength of concrete. Which of the above statements are correct?
Alt1	1 and 2 only
Alt2	2 and 3 only
Alt3	1 and 3 only
Alt4	1, 2 and 3

47	A hollow circular column at internal diameter 'd' and external diameter '1.5d' is subjected to compressive load. The maximum distance of the point of application of load from the centre for no tension is:-
Alt1	$\dfrac{13d}{48}$
Alt2	$\dfrac{13d}{96}$

Alt3	$\dfrac{d}{4}$
Alt4	$\dfrac{d}{8}$

48	When a number of roads are meeting at a point and only one of the roads is important, then the suitable shape of rotary is:-
Alt1	tangent
Alt2	elliptical
Alt3	circular
Alt4	turbine

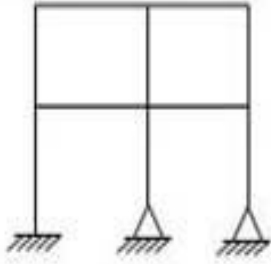| 49	A soil has a bulk density of 22 KN/m3 and water content 10%.The dry density of soil is:-
Alt1	20.0 KN/m3
Alt2	23.2 KN/m3
Alt3	18.6 KN/m3
Alt4	22.0 KN/m3

50	A rectangular beam of width 230mm and effective depth 300mm is proposed to carry a BM and SF of 120 kNm and 270 kN, respectively. If M30 grade of concrete and Fe 415 steel are used for which τc max = 3.5 MPa, which one of the following statements is correct?
Alt1	It can be designed as a doubly reinforced section but it is unsafe from shear considerations
Alt2	The section is unsafe from shear considerations
Alt3	It can be designed as a doubly reinforced section
Alt4	It can be designed as a singly reinforced, under-reinforced section

51	The minimum strain at failure in tension steel having yield stress fy = 415 MPa and Young's Modulus Es = 200 GPa, as per Limit State Method of Design, is:-
Alt1	0.0038
Alt2	0.0045
Alt3	0.0025
Alt4	0.005

52	What is the unified soil classification system based on?
Alt1	Chemical properties
Alt2	Physical properties
Alt3	Soil colour
Alt4	Organic matter content

53	What is the amount of water required for a workable RC of mix 1:2:4 by weight, when W/Cis 0.60 and unit weight of concrete is 2400 kg/m3?
Alt1	165 l
Alt2	285 l
Alt3	245 l
Alt4	205 l

54	Consider the following statements related to 'non-destructive testing' of concrete: 1. Indentation test is used to assess the quality of concrete. 2. Resonant Frequency Method is based on a laboratory test. 3. Compressive strength of concrete is estimated through Pulse Velocity Measurement. 4. Dynamic Modulus of Elasticity is determined by a Sonometer Test. 5. Thickness of concrete can be estimated by in-situ Rebund Hammer Test. Which of the above statements are correct?
Alt1	1, 2 and 3 only
Alt2	1,2,3,4 and 5
Alt3	1, 2 and 5 only
Alt4	1, 2, 3 and 4 only

55	
Alt1	10
Alt2	12
Alt3	16
Alt4	8

What is the number of kinematic indeterminacy for the building frame as shown in the figure when members are inextensible?

56	If T and R are tread and rise respectively of a stair, then:-
Alt1	R+2T = 30
Alt2	2R+T = 30
Alt3	2R+T = 60
Alt4	R+2T = 60

57	The shape of transition curve used in the horizontal alignment of highway as per IRC recommendation is:-
Alt1	cubic parabola

Alt2	lemniscate of Bernoulli
Alt3	spiral
Alt4	any of the above

58	The absolute minimum radius of curve for safe operation of a speed of 110m kmph is:-
Alt1	220m
Alt2	440m
Alt3	110m
Alt4	577m

59	In considering Plastic Analysis, which of the following is a valid comprehensive statement?
Alt1	Shape factor is the ratio of Plastic section Modulus to the Elastic section Modulus
Alt2	Shape factor is the ratio of Plastic Section Modulus to the Elastic Section Modulus and its value is always greater than 1.0
Alt3	Shape factor is the ratio of Elastic Section Modulus to the Plastic section Modulus
Alt4	Shape factor is the ratio of Elastic Section Modulus to the Plastic Section Modulus and its value is always less than 1.0

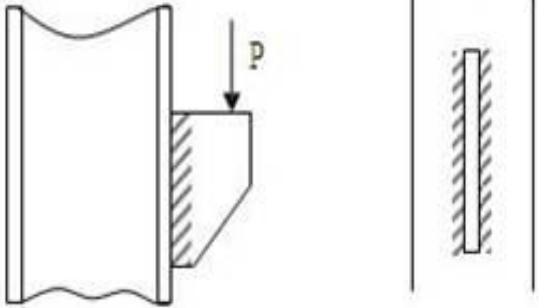|	
60	Which of the following types of soil is transported by gravitational forces?
Alt1	Dune sand
Alt2	Drift
Alt3	Talus
Alt4	Loess

61	In the case of a three pinned parabolic arch carrying a uniformly distributed load on the entire span, then bending moment will be:-
Alt1	Zero only at the centre
Alt2	Maximum at the quarter span
Alt3	Zero throughout the span
Alt4	Equal to that of simply supported beam loaded in the same manner

62	Minimum spacing between horizontal parallel reinforcement of different sizes, should not be less than:-
Alt1	sum of the diameters of thinner and thicker bars
Alt2	one diameter of thicker bar
Alt3	twice the diameter of the thinner bar
Alt4	One diameter of thinner bar

63	Which of the following is known as design capacity:-
Alt1	Basic capacity
Alt2	Possible capacity
Alt3	Theoretical capacity
Alt4	Practical capacity

64	For the welded joint shown in the figure, the direct vertical shear stress on the weld is 40 MPa and the bending stress is 120 MPa. For what strength should the weld be designed? Front View Side View
Alt1	80 MPa
Alt2	160 MPa
Alt3	132 MPa
Alt4	120 MPa

65	In a concrete mix, if the maximum size of coarse aggregate is increased, the proportion of fine to coarse aggregate should be:-
Alt1	Not depend on size of aggregate
Alt2	Increased
Alt3	kept the same
Alt4	Decreased

66	Which one of the following methods is not classifiable as a Force Method?
Alt1	The Moment Distribution Method
Alt2	Castigliano's Theorem
Alt3	The Method of Consistent Deformation
Alt4	The Theorem of Three Moments

67	What is the minimum area of tension reinforcement in beams when Fe 415 is used?
Alt1	0.0015
Alt2	0.008
Alt3	0.002
Alt4	0.0012

68	The maximum efficiency of BOD removal is achieved in:-
Alt1	Oxidation ditch
Alt2	Trickling filters
Alt3	Oxidation pond
Alt4	Aerated lagoons

69	The hydrometer method of sedimentation analysis differs from the pipette analysis mainly in:-
Alt1	The method of taking observation
Alt2	The method of preparation of soil suspension

Alt3	Procedure of test
Alt4	The principle of test

70	Surge tanks are used:-
Alt1	to increase the velocity in a pipeline
Alt2	as overflow valves
Alt3	to guard against water hammer
Alt4	for storage water

71	The major photochemical oxidant is:-
Alt1	Nitrogen oxides
Alt2	Hydrogen peroxide
Alt3	Ozone
Alt4	Peroxyl Acetyl Nitrate(PAN)

72	The minimum and maximum diameter of sewers shall preferably be:-
Alt1	15 cm and 100 cm
Alt2	15cm and 300 cm
Alt3	60 cm and 300 cm
Alt4	30 cm and 450 cm

73	In normal condition , the period for sludge digestion is:-
Alt1	30 days
Alt2	10 days
Alt3	60 days
Alt4	20 days

74	The width of formation of a road means the width of:-
Alt1	Carriageway
Alt2	embankment at ground level
Alt3	embankment at top level
Alt4	pavement and shoulders

75	Biochemical Oxygen Demand(BOD) of safe drinking water must be:-
Alt1	10
Alt2	Nil
Alt3	15
Alt4	5

76	For satisfactory working of a sludge digestion unit, the pH range of digested sludge should be maintained as:-
Alt1	4.5 to 6.0
Alt2	10.5 to 12.0
Alt3	6.5 to 8.0
Alt4	8.5 to 10.0

77	If the discharge of a centrifugal pump is throttled, then its suction lift:-

Alt1	Remains unchanged
Alt2	Data insufficient to predict
Alt3	Increases
Alt4	Decreases

78	The population growth curve is:-
Alt1	Straight line
Alt2	Parabolic curve
Alt3	S-shaped curve
Alt4	Circular curve

79	Gas leaked in Bhopal Tragedy:-
Alt1	Sodium isothiocyanate
Alt2	Methyl isocyanate
Alt3	Potassium isothoiocynate
Alt4	Ethyl isocyanate

80	The main disadvantage of oxidation pond is that:-
Alt1	Maintenance and operation cost are high
Alt2	Large area is required for construction
Alt3	BOD removal is very low
Alt4	None of the above

81	The total and effective stresses at a depth of 5m below the top level of water in a swimming pool are respectively:-
Alt1	0.5 Kg/cm2 and 0.5 Kg/cm2
Alt2	0.5 Kg/cm2 and Zero
Alt3	Zero and Zero
Alt4	1.0 Kg/cm2 and 0.5 Kg/cm2

82	Highway Research Board (HRB) classification of soil is based on:-
Alt1	Particle size composition
Alt2	Plasticity characteristics
Alt3	Both particle size composition and plasticity characteristics
Alt4	none of the above

83	Alcohol is used in manometer because:-
Alt1	It can provide longer column due to low density
Alt2	It is clearly visible
Alt3	It has low surface tension
Alt4	It has low vapour pressure

84	When drainage is permitted under initially applied normal stress only and full primary consolidation is allowed to take place, the test is known as:-
Alt1	Quick test
Alt2	consolidation test
Alt3	consolidated undrained test

Alt4	drained test

85	A beam is said to be of uniform strength, if:-
Alt1	B.M is same throughout the beam
Alt2	bending stress is same throughout the beam
Alt3	deflection is same throughout the beam
Alt4	shear stress is same throughout the beam

86	In a _____ , the flow rate of fluids is obtained by measuring the difference between the impact and the static pressure.
Alt1	Pitot tube
Alt2	Venturimeter
Alt3	Flow nozzle
Alt4	Rotameter

87	A fluid is said to be ideal, if it is:-
Alt1	Inviscous
Alt2	Inviscous and incompressible
Alt3	Inviscous and compressible
Alt4	Incompressible

88	Cavitation is caused by:-
Alt1	Low viscosity
Alt2	Low pressure
Alt3	High velocity
Alt4	High pressure

89	In steady flow of a fluid, the acceleration of any fluid particle is:-
Alt1	Constant
Alt2	Zero
Alt3	Variable
Alt4	Never Zero

90	A river training work is generally required when the river is:-
Alt1	Aggrading type
Alt2	Degrading type
Alt3	Meandering type
Alt4	Both (a) and (b)

91	A cylinder is said to be thin if the ratio of its thickness and diameter, is less than:-
Alt1	1/15
Alt2	1/10
Alt3	1/25
Alt4	1/20

92	The ratio of settlement at any time 't' to the final settlement, is known as:-
Alt1	Co-efficient of consolidation

Alt2	consolidation of undisturbed soil
Alt3	consolidation index
Alt4	degree of consolidation

93	Bernoulli equation deals with the law of conservation of:-
Alt1	Momentum
Alt2	Energy
Alt3	Mass
Alt4	Work

94	Which of the following spillways is least suitable for an earthen dam?
Alt1	Side channel spillway
Alt2	ogee spillway
Alt3	Shaft spillway
Alt4	chute spillway

95	A Kaplan turbine is suitable for:-
Alt1	Low head high discharge
Alt2	High head high discharge
Alt3	Low head low discharge
Alt4	High head low discharge

96	The height of the pilot's eye above the runway surface is assumed:-
Alt1	5 m
Alt2	3 m
Alt3	1m
Alt4	4 m

97	The stress-strain relation of the Newtonian fluid is:-
Alt1	Linear
Alt2	Inverse type
Alt3	Hyperbolic
Alt4	Parabolic

98	vadose zone is:-
Alt1	Zone of saturation
Alt2	Phreatic zone
Alt3	Zone of aeration
Alt4	All the above

99	The unit for kinematic viscosity are:-
Alt1	m2/sec
Alt2	N-sec/m
Alt3	Kg sec/m
Alt4	None of these

100	Two single runways may be arranged so as to have:-

Alt1	L- shape	
Alt2	T-shape	
Alt3	X-shape	
Alt4	all the above	