Maharashtra PWD JE

Previous Year Paper

Paper-IV 24 June, 2018

Question Paper Title : PWD-Paper-4

Date of Exam : 24-06-2018 09:00 AM

1 Two pipes are connected in parallel with fluid flowing through them if the loss of head in one branch is " h " the loss in other branch is

a) 2 h

b) h

c) h / 2

d) $\sqrt{h}$

a

b

c

d

Answer: b

2 The main reinforcement in the toe of a T-shaped R.C. retaining wall is provided on
(i) top face, parallel to the wall
(ii) top face, perpendicular to the wall
(iii) bottom face, parallel to the wall
(iv) bottom face, perpendicular to the wall

A.only (ii) is true

B.(ii) and (iv) are true

C.(i) and (iii) are true

D.only (iv) is true

Answer: D.only (iv) is true

3	Due to presence of which one of the following minerals, black cotton soil exhibits swelling nature ?
	A.Kaolinite
	B.Illite
	C.Mont morillonite
	D.None of the above
Answer:	C.Mont morillonite

4	To determine which one of the following property of soil mass proctor test is conducted?
	A.Grain size analysis
	B.Shear strength
	C.Bearing capacity
	D.Compaction
Answer:	D.Compaction

5	There are four words in a set. Select the odd one out.
	A. Favoritism
	B. Possessiveness
	C. Nepotism
	D. Bigotry
Answer:	B. Possessiveness

6	The Benchmark (BM) fixed at the end of a day’s work is called the
	A.Temporary BM
	B. Permanent BM
	C.Arbitrary BM
	D.None of these
Answer:	A.Temporary BM
7	The sign of slope correction and sag correction applied to tape error are
	A.Positive and negative respectively
	B. Negative and positive respectively
	C.Both positive
	D. Both negative
Answer:	D. Both negative
8	If time required for achieving 50% consolidation of clayey soil sample with single drainage is ‘t’ then what time will be required for achieving same degree of consolidation for the same soil sample but with double drainage ?
	A.‘ t ‘
	B.4t
	C.t/4
	D.16t
Answer:	C.t/4

9	For conducting modified proctor compaction test what should be the height of free fall of hammer(in mm) ?
	A.304.8
	B.457.2
	C.310
	D.450
Answer:	B.457.2
10	Which of the following device is used for measuring the velocity of flow at any point in a pipe?
	A. Venturimeter
	B. Orifice meter
	C. Pitot-tube
	D. Both Venturimeter and Orifice meter
Answer:	C. Pitot-tube
11	In which one of the following joints, dowel bars are provided in cement concrete pavement?
	A.Expansion joints
	B.Longitudinal joints
	C.Construction joints
	D.None of the above
Answer:	A.Expansion joints

12	The house sewer should be disconnected from the public sewer by the provision of _____.
	A. Floor trap
	B. Nahni trap
	C. Gully trap
	D. Intercepting trap
Answer:	D. Intercepting trap

13	For conducting heavy compaction test as per Indian standard , what should be the volume of mould (in cc) ?
	A.944
	B.970
	C.1000
	D.1130
Answer:	C.1000

14	Which one of the following test is conducted for identification of silt from clay ?
	A.Plate load test
	B.Standard penetrate test
	C.Vane shear test
	D.Dilatancy test
Answer:	D.Dilatancy test

15	For conducting standard proctor compaction test, what should be the weight of hammer (in kg)?
	A.2.495
	B.4.54
	C.2.6
	D.4.9
Answer:	A.2.495
16	If velocity potential (Φ) satisfies the laplace equation , it represents
	A.possible steady and Irrotational flow
	B.rotational flow
	C.steady flow only
	D.non of the above
Answer:	A.possible steady and Irrotational flow
17	The simplest method for the determination of water content of a soil sample in the laboratory is
	A. Oven drying method
	B. Pycnomter method
	C. Sand bath method

	D. Rapid moisture Meter method
Answer:	A. Oven drying method
18	Polar moment of inertia is
	A.Moment about XX axis
	B. Moment about YY axis
	C.Moment about XX axis + Moment about YY axis
	D.Moment about XX axis - Moment about YY axis
Answer:	C.Moment about XX axis + Moment about YY axis
19	पवित्र स्थान बद्रीनाथ _____ राज्यात स्थित आहे. The holy town of Badrinath is located in the state of ___
	A.उत्तर प्रदेश A.Uttar Pradesh
	B.हिमाचल प्रदेश B.Himachal Pradesh
	C.जम्मू आणि काश्मीर C.Jammu and Kashmir
	D.उत्तराखंड D.Uttrakhand
Answer:	D.उत्तराखंड D.Uttrakhand

20 Which one of the following is correct formula for calculating magnitude of coefficient of compressibility?

a) $a_v = \left|\frac{\Delta e}{\Delta \sigma}\right|$

b) $a_v = \left|\frac{\Delta \sigma}{\Delta e}\right|$

c) $a_v = \left|\frac{\left(\frac{\Delta e}{1+e_0}\right)}{\Delta \sigma}\right|$

d) $a_v = \left|\frac{\Delta \sigma}{\left(\frac{\Delta e}{1+e_0}\right)}\right|$

a

b

c

d

Answer: a

21 Which one of the following formula is used for the calculation of intermediate sight distance?
SSD: stopping sight distance
OSD: overtaking sight distance

2 × SSD

2 × OSD

SSD + DSD

	2(SSD + OSD)
Answer:	2 × SSD
22	In highway engineering, which one of the following is the range of design value of longitudinal friction coefficient?
	A.0.2 – 0.3
	B.0.35 – 0.4
	C.0 .5 – 0.6
	D.0.6 – 0.7
Answer:	B.0.35 – 0.4
23	Choose the part which has an error.
	A.My friend Jane
	B.is flying
	C.to Madrid
	D.at Saturday.
Answer:	D.at Saturday.
24	Cipoletti weir is an example of

	A. Rectangular weir
	B. Triangular weir
	C. Trapezoidal weir
	D.Circular weir
Answer:	C. Trapezoidal weir

25	एका फुलांच्या टोपलीत 3 पांढरे, 4 लाल आणि 5 पिवळे गुलाब ठेवले आहेत. टोपलीतून कमीतकमी किती गुलाब बाहेर काढले असता निश्चितपणे 2 लाल गुलाब निघू शकतील ? A flower basket contains 3 white, 4 red and 5 yellow roses. What is the minimum number of roses that must be drawn from the basket so that you definitely draw 2 red roses?
	A.7 A.7
	B.8 B.8
	C.10 C.10
	D.12 D.12
Answer:	C.10 C.10

26	Which one of the following property of soil mass is evaluated by conducting plate load test?
	A.Bearing capacity
	B.Load carrying capacity
	C.Permeability of soil mass

D.Swelling characteristics

Answer: A.Bearing capacity

27 Which one of the following represents the unit of dynamic viscosity of a fluid?

(N-sec) / m^2

(N-m) / sec

(N- m^2) / sec

m^2 / N -sec

Answer: (N-sec) / m^2

28 Which one of the following test can be done with disturbed sampling?

A.Shear strength of sand

B.Determination of compaction parameters

C.Atterberg limits

D.All of the above

Answer: D.All of the above

29 Mach number is

A.Ratio of inertia force & gravity force

	B.Ratio of fluid velocity & velocity of sound
	C.Ratio of inertial force & viscous force
	D.Ratio of inertial force & surface tension
Answer:	B.Ratio of fluid velocity & velocity of sound

30	In which one of the following axial flow reaction turbine, vanes are not fixed to the hub and are adjustable?
	A.Francis turbine
	B.Propeller turbine
	C.Kaplan turbine
	D.none of the above
Answer:	C.Kaplan turbine

31	Which one of the following is the correct group symbol of clayey sand ?
	A.SM
	B.OH
	C.SC
	D.GC
Answer:	C.SC

32	In laminar flow,
	A. All the stream lines are straight and parallel

B. Some of the stream lines are straight and parallel

C. All the stream lines are straight but not parallel

D. All the stream lines are parallel but not straight

Answer: A. All the stream lines are straight and parallel

33 For a circular shaft of diameter d subjected to torque T, The maximum value of shear stress is

a) $\frac{64T}{\pi d^3}$

b) $\frac{32T}{\pi d^3}$

c) $\frac{16T}{\pi d^3}$

d) $\frac{8T}{\pi d^3}$

a

b

c

d

Answer: c

34 Which one of the following apparatus is used for the determination of grain size distribution of fine grained soil?

A.Casagrande apparatus

B.Hydrometer

C.Oedometer

D.Pyonometer

Answer: B.Hydrometer

35 Lacustrine soils are transported & deposited by which one of the following agent ?

A.Wind

B.Rivers

C.Lakes

D.Sea

Answer: C.Lakes

36 Steady flow is defined as that type of flow in which fluid characteristics like velocity, pressure, density at a point does not change with ____

A. space only

B. time only

C.time and co-ordinate

D. pressure

Answer: B. time only

37 For a broad crested weir, H = height of water above the crest, h = head of water at the middle of weir, the discharge to be maximum,

A. h = 0.50H

B. h = 0.67H

C. h = 0.75H

D. h = 0.85H

Answer: B. h = 0.67H

38 The measure of deformation caused due to external loading is called

Stress

Strain

Strain rosettes gauge

slip gauge length

Answer: Strain

39 खालीलपैकी सर्वात लहान अपूर्णांक कोणता आहे ?

Which of the following fractions is the least?

A.20/25
A.20/25

B.15/21
B.15/21

C.15/25
C.15/25

D.18/20
D.18/20

Answer: C.15/25
C.15/25

40 _____ हा अवयव रक्तातून शरीरातील नायट्रोजनयुक्त टाकाऊ पदार्थ गाळून (फिल्टर करून) नंतर मूत्राद्वारे बाहेर फेकतो.

_____ filter nitrogenous waste of the body from the blood and throw it out as urine.

A.मूत्रपिंड

A.Kidney

B.यकृत

B.Liver

C.मोठे आतडे

C.Large intestine

D.छोटे आतडे

D.Small intestine

Answer: A.मूत्रपिंड

A.Kidney

41 खाली दिलेल्या पर्यायातून प्रश्नात दिलेल्या शब्दांच्या गटात न बसणार शब्द निवडा.

A.नीलगाय

B.काळवीट

C.सांभर

	D.तरस
Answer:	D.तरस
42	खाली दिलेल्या पर्यायातून प्रश्नातील शब्दासाठी विरुद्धार्थी शब्द निवडा. प्रगतीशील
	A.मागासलेले
	B.निर्ढावलेले
	C.पुढारालेले
	D.स्वावलंबी
Answer:	A.मागासलेले
43	A hollow rectangular section with outside breadth “B” and depth “D” and inside dimension b and d will have sectional modulus as
	A.$(BD^2 – bd^2)/6$
	B.$(BD^3– bd^3)/6D$
	C.$(BD^3– bd^3)/6d$
	D.$(BD^3– bd^3)/6b$
Answer:	B.$(BD^3– bd^3)/6D$
44	If the flange of certain steel rolled I section comes under the plastic class and web comes under the compact class, then as per IS 800 : 2007, the I section will come under the category of
	A.Plastic
	B.Compact

C.Semi-compact

D.Slender

Answer: B.Compact

45 The depreciation cost of rapid sand filter than slow sand filter is

A.relatively high

B.relatively very high

C.relatively low

D.relatively very low

Answer: A.relatively high

46 Macaulay’s method is used to determine

A. Section modulus of beam

B.Tensile stress

C.Shear stress

D.Deflection of beam

Answer: D.Deflection of beam

47 ४०० ह्या अंकाच्या १०% च्या ५% किती होतात ?

What is 10% of 5% of 400?

A.८०० च्या १०% च्या २५%
A.10% of 25% of 800

	B.१०० च्या २०% च्या १०% B.20% of 10% of 100
	C.२०० च्या २५% च्या २५% C.25% of 25% of 200
	D.२०० च्या १०% च्या ४०% D.10% of 40% of 200
Answer:	B.१०० च्या २०% च्या १०% B.20% of 10% of 100

48	किती देश एकत्रितपणे राष्ट्रकुल राष्ट्रसमूह निर्माण करतात? How many countries together constitute the Commonwealth Nations ?
	A.104 A.104
	B.51 B.51
	C.53 C.53
	D.63 D.63
Answer:	C.53 C.53

49	As per IRC recommendation, what should be the width of carriage way for two lane roads with raised kerbs?
	A.3.75m
	B.5.5m
	C.7.0m
	D.7.5m

Answer:	D.7.5m

50	Consider the following statements regarding Soil stabilization: X: The principles of soil stabilization are used for controlling the grading of soils and aggregates in the construction of bases and sub-bases of the highways and airfields. Y: Lime stabilization is done by adding lime to a soil. Which of the above statement/s is/are CORRECT?
	A. X only
	B. Y only
	C. Both X & Y
	D. Neither X nor Y
Answer:	C. Both X & Y

51	For which of the following particle size distribution does the sieve analysis performed in soil?
	A.Coarse grained soil
	B.Fine grained soil
	C.Both Coarse grained soil and Fine grained soil
	D.None of the above
Answer:	A.Coarse grained soil

52	Water is flowing through a 200 mm diameter circular pipe having coefficient of friction, f = 0.04. The Reynolds number of the flow considering viscous flow is
	A.600
	B.800
	C.400
	D.date insufficient
Answer:	C.400

53	The property of loss of strength due to cyclic loading is known as:
	A.Boiling
	B.Liquefaction
	C.Thixotropy
	D.Sensitivity
Answer:	B.Liquefaction

54	The Reference Location of _____ are assumed on the basis of some fixed Points.
	A.Permanent Bench mark
	B.Temporary Bench mark
	C. Arbitrary Bench Mark
	D. None of the above
Answer:	C. Arbitrary Bench Mark

55	Find the word that has been incorrectly spelt.
	A. buoyant
	B. symmetery
	C. believe
	D. shimmer
Answer:	B. symmetery

56	In reinforced concrete, pedestal is defined as a compression member whose effective length does not exceed its least lateral dimension by
	A.12 times
	B.16 times
	C.7 times
	D.3 times
Answer:	D.3 times

57	In a liquid droplet (spherical) if the diameter of droplet is decreased, then the pressure intensity inside the droplet will (keep other parameters unchanged)
	A.Decrease
	B. Increase
	C.Remain same
	D. None of the above
Answer:	B. Increase

58	खालीलपैकी सर्वात लहान पर्याय कोणता आहे ? Which of the following options is the smallest?
	A.25 च्या 10% + 150 च्या 15% - 300 च्या 30% A.10% of 25 + 15% of 150 - 30% of 300
	B.25 च्या 30% - 150 च्या 25% + 300 च्या 15% B.30% of 25 - 25% of 150 + 15% of 300
	C.200 च्या 15% + 100 च्या 15% - 250 च्या 30% C.15% of 200 + 15% of 100 - 30% of 250
	D.100 च्या 20% - 100 च्या 25% + 250 च्या 5% D.20% of 100 - 25% of 100 + 5% of 250
Answer:	A.25 च्या 10% + 150 च्या 15% - 300 च्या 30% A.10% of 25 + 15% of 150 - 30% of 300

59	Which one of the following substance is blended with bitumen for production rapid curing cutback bitumen?
	A.Petrol
	B.Diesel
	C.High boiling point gases
	D.None of the above
Answer:	A.Petrol

60	In which one of the following case, toe failure of finite slope is most likely to occurs?
	A.Soil above & below the toe of slope have same strength
	B.Soil above the toe of slope is comparatively weaker
	C.Soil above the toe of slope is comparatively stronger

D.None of the above

Answer: A.Soil above & below the toe of slope have same strength

61 A main word is followed by a sentence highlighting its usage. From among the four options choose the one that is most nearly opposite in meaning to the main word.
Uncouth: His uncouth behaviour antagonized many.

A. Utopian

B.Incomprihensible

C. Tawdry

D.Urbane

Answer: D.Urbane

62 जर x > 10 आणि x < 20, तर खालीलपैकी सर्वात लहान अपूर्णांक कोणता आहे ?

If x > 10 and x < 20, then which of the following fractions is the least?

A.3x/100
A.3x/100

B.2x/230
B.2x/230

C.x/225
C.x/225

D.0.5x/150
D.0.5x/150

Answer: D.0.5x/150
D.0.5x/150

63 पाच रु.1 ची नाणी, पाच 50 पैशाची नाणी, पाच 25 पैशाची नाणी, व एक 10 पैशाचे नाणे हे A, B, C, व D ह्या चार मित्रांमध्ये अश्या प्रकारे वाटण्यात आली कि जेणेकरून प्रत्येकाच्या वाटयाला समान संख्येची नाणी आली. जर प्रत्येक व्यक्तीकडे तीन प्रकारचे नाणी असतील आणि A कडे रु.1.10 रक्कम असेल, तर
(I) एका व्यक्तीकडे रू.2.25 आहेत
(II) एका व्यक्तीकडे रू.2.75 आहेत
(III) दोन व्यक्तींकडे प्रत्येकी रू.2.25 आहेत
(IV) दोन व्यक्तींकडे प्रत्येकी रू.2.75 आहेत

5 Re.1 coins, five 50 paise coins, five 25 paise coins, and one 10 paise coin, are distributed amongst four friends A, B, C, and D such that each of them get equal number of coins. If each of them have three types of coins and A has Rs.1.10, then
I. one person has Rs.2.25.
II. one person has Rs.2.75.
III. two persons have Rs.2.25.
IV. two persons have Rs.2.75.

A.I आणि III
A.I and III

B.I आणि IV
B.I and IV

C.II आणि III
C.II and III

D.काहीही नाही
D.None

Answer: B.I आणि IV
B.I and IV

64 खालीलपैकी कोणते शहर एखाद्या देशाची राजधानी आहे?

Which of the following cities is a capital of a country?

A.कराची

A. Karachi

B.शांघाय

B.Shanghai

C.न्यूयॉर्क

C.New York

D.कॅनबेरा

D.Canberra

Answer: D.कॅनबेरा

D.Canberra

65 If the value of internal friction for sandy soil is 30 degree, then what will be value of passive earth pressure coefficient (kp) ?

A.1/3

B.3

C.1/9

D.9

Answer: B.3

66 A, B आणि C एका आइस्क्रीम पार्लरमध्ये दररोज जातात. प्रत्येक जण एकतर बार किंवा कोन मागवतो. जर A ने बार मागवला तर B हा C ने जे मागवले तेच मागवेल. जर C ने कोन' मागवला, तर A हा B ने जे मागवले तेच मागवेल.
कोण नेहमी एक ठराविक डिश मागवतो?

A, B and C go to an ice-cream parlour everyday. Each orders either a bar or a cone. Whenever A orders a bar, then B will order the same as C orders. Whenever C orders a cone, then A will order the same as B does.
Who always orders the same dish?

A.A
A.A

B.B
B.B

C.C
C.C

D.यापैकी एकही नाही
D.None of these

Answer: D.यापैकी एकही नाही
D.None of these

67 One stoke is equals to

A.$10^{-4}m^2/s$

B.$10^{-2}m^2/s$

C.$10^{-3}m^2/s$

D.$10^{-6}m^2/s$

Answer: A.$10^{-4}m^2/s$

68 खालीलपैकी सर्वात लहान पर्याय कोणता आहे ?

Which of the following options is the smallest?

	A.5 – 15 + 10 – 15 – 10 – 5 + 2 – 4 – 8 – 10 A.5 – 15 + 10 – 15 – 10 – 5 + 2 – 4 – 8 – 10
	B.35 – 12 + 10 + 15 – 5 – 5 + 2 – 4 + 18 – 10 B.35 – 12 + 10 + 15 – 5 – 5 + 2 – 4 + 18 – 10
	C.5 + 5 – 10 – 12 + 10 + 5 – 2 + 14 + 8 – 10 C.5 + 5 – 10 – 12 + 10 + 5 – 2 + 14 + 8 – 10
	D.15 – 25 + 10 – 15 – 10 – 5 – 2 – 4 + 8 – 5 D.15 – 25 + 10 – 15 – 10 – 5 – 2 – 4 + 8 – 5
Answer:	A.5 – 15 + 10 – 15 – 10 – 5 + 2 – 4 – 8 – 10 A.5 – 15 + 10 – 15 – 10 – 5 + 2 – 4 – 8 – 10

69	If principal stress in plane stress problem is σ_1 = 100 Mpa, σ_2 = 40 Mpa, then magnitude of maximum shear stress (Mpa)
	A.50
	B.60
	C.30
	D.20
Answer:	C.30

70	Which one of the following light reflecting devices are used to guide the driver along proper alignment ?
	A.Delineator
	B.Rumble strips
	C.Litter bin
	D.None of the above
Answer:	A.Delineator

71	Maximum shear strain energy theory is also known as
	A.Rankine theory
	B.Tresca theory
	C.Von Mises Henky Theory
	D.Saint Venant Theory
Answer:	C.Von Mises Henky Theory

72	If no organic matter present in water, BOD of water will be
	A. Positive
	B. Negative
	C. Zero
	D. May be positive or negative
Answer:	C. Zero

73	The dimension of surface tension and capillarity are
	A. MLT^{-2} , LT respectively
	B. MT^{-2} , L respectively
	C. MLT^{-1} , LT^2 respectively
	D. MLT^{-2} , LT^2 respectively
Answer:	B. MT^{-2} , L respectively

74	Which one of the following traffic volume is considered in design of road geometrics in india ?
	A.30th highest hourly traffic volume
	B.40th highest hourly traffic volume
	C.50th highest hourly traffic volume
	D.60th highest hourly traffic volume
Answer:	A.30th highest hourly traffic volume

75	चार व्यक्ती A, B, C आणि D पैकी एक शिक्षक आहे व कॅरम आणि क्रिकेट खेळतो. A आणि B डॉक्टर आहेत. A पोलो हा खेळ खेळतो. दोन्ही डॉक्टर फुटबॉल खेळतात. D एक वकील आहे. एक डॉक्टर बुध्दिबळ देखील खेळतो. वकील कॅरम आणि फुटबॉल खेळतो. सर्व चार व्यक्ती प्रत्येकी दोन खेळ खेळतातच आणि कोणतातरी एक व्यवसाय करतातच. व्यक्तींपैकी कोण व्यक्ती पोलो हा खेळ खेळतो व डॉक्टर आहे? There are four persons A, B, C and D. One of them is a lecturer and plays carrom and cricket. A and B are doctors. A plays polo. Both the doctors play football. D is a lawyer. One doctor also plays chess. The lawyer plays carrom and plays football. All four people play two games each and follow one profession. Who plays polo and is a doctor?
	A.A A.A
	B.B B.B
	C.C C.C
	D.D D.D
Answer:	A.A A.A

76	The ratio of lateral strain to longitudinal strain is
	A.Strain ratio
	B.Poisson’s ratio
	C.Bulk modulus
	D.Young’s modulus
Answer:	B.Poisson’s ratio

77	खाली दिलेल्या पर्यायातून व्याकरणाच्या दृष्टीने चुकीचा असलेला पर्याय निवडा.
	A.गेल्या दशकात आर्थिक शक्तीच्या जोरावर एक जागतिक सत्ता म्हणून चीनचा उदय झाला आहे. चीन एक निर्याताभिमुख अर्थव्यवस्था आहे.
	B.आयातीवर बहिष्कृत टाकण्यामागे त्या देशाला आर्थिकदृष्ट्या दबाव दुखावून टाकण्याची रणनीती असते, जेणेकरून संबंधित देशाने आपल्या धोरणाचा पुनर्विचार करावा.
	C.‘मेक इन इंडिया’ या अभियानामागील मुख्य उद्देश भारताला जागतिक उत्पादनाचे महत्त्वाचे केंद्र बनविण्याचे आहे.
	D.चीन आणि अमेरिका या कट्टर प्रतिस्पर्ध्यातील द्विपक्षीय व्यापार भारताच्या द्विपक्षीय व्यापारापेक्षा किती तरी पटीने अधिक म्हणजे ६०० बिलियन डॉलर एवढा प्रचंड आहे.
Answer:	B.आयातीवर बहिष्कृत टाकण्यामागे त्या देशाला आर्थिकदृष्ट्या दबाव दुखावून टाकण्याची रणनीती असते, जेणेकरून संबंधित देशाने आपल्या धोरणाचा पुनर्विचार करावा.

78	भारतातील विमा पॉलिसींच्या विक्रीवर नियंत्रण आणि नियमन करणारी नियामक संस्था कोणती आहे? Which is the regulatory body that controls and governs selling of insurance policies in India?
	A.सेबी A.SEBI
	B.ए एम एफ आय B.AMFI

C.आय आर डी ए आय
C.IRDAI

D.पी एम ओ
D.PMO

Answer: C.आय आर डी ए आय
C.IRDAI

79 Which of the following geological formation is neither porous nor permeable?

A. Aquiclude

B. Aquitard

C. Aquifuge

D. None of these

Answer: C. Aquifuge

80 If characteristic length of column is doubled the critical load becomes.

A.1/2 of the original value

B.1/4 of the original value

C.1/8 of the original value

D.1/16 of the original value

Answer: B.1/4 of the original value

81 Which one of the following statement is justified by the assumption plane section before bending remain plane even after the bending?

A.Strain profile varies linearly

	B.Stress profile varies linearly
	C.Both stress & strain profile varies linearly
	D.None of the above
Answer:	A.Strain profile varies linearly
82	Which one of the following test is conducted to evaluate the strength property of aggregate ?
	A.Crushing test
	B.Abrasion test
	C.Soundness test
	D.Angularity test
Answer:	A.Crushing test
83	Which one of the following test is conducted to evaluate the porosity property of aggregate?
	A.Water absorption test
	B.Impact test
	C.Soundness test
	D.Abrasion test
Answer:	A.Water absorption test
84	Which one of the following piles are used for densifying loose soil?
	A.Point bearing piles

B.Sheet piles

C.Compaction piles

D.Batter piles

Answer: C.Compaction piles

85 Which of the following relationship is CORRECT?

A.Bulk modulus =3 × Elastic modulus × (1 - 2 × Poisson’s ratio)

B. Elastic modulus = 3 × Bulk modulus × (1 - 2 × Poisson’s ratio)

C.Bulk modulus = 2 × Elastic modulus × (1 + 2 × Poisson’s ratio)

D.Elastic modulus =3 × Bulk modulus × (1 + 2 × Poisson’s ratio)

Answer: B. Elastic modulus = 3 × Bulk modulus × (1 - 2 × Poisson’s ratio)

86 सुनील हा वयाने स्वराजच्या वयाच्या दुप्पट आहे आणि नवीन हा स्वराज पेक्षा दोन वर्षांने लहान आहे. जर मनोज एका वर्षाने स्वराजपेक्षा लहान असेल तर वयाने सर्वांत लहान कोण आहे?

Sunil is twice the age of Swaraj and Naveen is two years younger than Swaraj. If Manoj is one year younger to Swaraj, who is youngest of them all?

A.सुनील
A.Sunil

B.स्वराज
B.Swaraj

C.नवीन
C.Naveen

D.मनोज
D.Manoj

Answer: C.नवीन
C.Naveen

87	In a turbine system the shaft power obtained is 500 watt and overall efficiency is 0.5 what is water power
	A.1000 watts
	B.250 watts
	C.321 watts
	D.429 watts
Answer:	A.1000 watts

88	The dimension of surface tension is
	A.ML^{-1}
	B.$L^{2}T^{-1}$
	C.$ML^{-1}T^{-1}$
	D.MT^{-2}
Answer:	D.MT^{-2}

89	Which one of the following statement is true for pumps operating in series?
	A.Discharge increase
	B.Discharge decrease
	C.Head increase
	D.Head decrease
Answer:	C.Head increase

90 खाली दिलेल्या पर्यायातून व्याकरणाच्या दृष्टीने योग्य असलेला पर्याय निवडा.

A.उन्हाळ्यात स्वत:ला ताजेतवाने ठेवण्यासाठी किंवा मौजमस्ती करण्यासाठी तरण तलावात डुबकी मारणे सर्वोत्तम असे अनेकांना वाटते. पण तरण तलावात मारलेली एक डुबकी अनेक आजारांना निमंत्रण देऊ शकते.

B.तरण तलावामधिल पाणी रोज बदलले जात नसते तर मुलांना त्वचारोग, अतीसाराचा त्रास होऊ शकत असेल. तरण तलावाचे पाणी जंतूनाशक ठेवले तर त्यामध्ये क्लोरिनचा वापर मोठ्या प्रमाणात केला जातो.

C.तरण तलावामधील पाणी रोज बदलले जाते का हे पाहाणे गरज आहे आणि तरण तलावामध्ये उतरण्याआधी शॉवर घेऊन म्हणजे स्वच्छ पाण्याने अघोळ करून जाणे हे गरज आहे.

D.ज्या मुलांना दम्याचा वा श्वसनविकाराचा त्रास असतो त्यांचा दमा या पाण्यामुळे वाढु शकतो, त्यामुळं काळजी घेणार गरजेचे आहे.

Answer: A.उन्हाळ्यात स्वत:ला ताजेतवाने ठेवण्यासाठी किंवा मौजमस्ती करण्यासाठी तरण तलावात डुबकी मारणे सर्वोत्तम असे अनेकांना वाटते. पण तरण तलावात मारलेली एक डुबकी अनेक आजारांना निमंत्रण देऊ शकते.

91 The most economical section of channels should have

A.Maximum discharge, minimum wetted perimeter

B.Maximum discharge, maximum wetted perimeter

C.Minimum discharge, maximum wetted perimeter

D.Minimum discharge, minimum wetted perimeter

Answer: A.Maximum discharge, minimum wetted perimeter

92 If the water flows along the tangent of the runner, the turbine is known as the

A.impulse turbine

	B.reaction turbine
	C.tangential flow turbine
	D.radial flow turbine
Answer:	C.tangential flow turbine
93	From the pairs of words given, choose the one that fills the blanks most appropriately. The Food and Drug Administration has recently _____ severe restrictions on the use of antibiotics to _____ the health and growth of meat animals.
	A. added ..... suppress
	B.placed ..... unleash
	C. proposed ..... promote
	D. thwarted ..... cultivate
Answer:	C. proposed ..... promote
94	While conducting standard penetration test, which one of the following is weight of split spoon sampler (in kg) used in the test ?
	A.30
	B.50
	C.65
	D.75
Answer:	C.65
95	Skimming tanks are used when sewage contains too much

A. Foods from kitchen

B. Grease or oil

C. Suspended solids

D. Settleable solids

Answer: B. Grease or oil

96 खाली दिलेल्या पर्यायातून प्रश्नातील शब्दासाठी समानार्थी शब्द निवडा.
अविश्रांत

A.अतिरंजित

B.अतिविशाल

C.आरामदायक

D.अविरत

Answer: D.अविरत

97 A line is considered as free from local attraction in Quadrantal Bearing system if the Fore bearing and Back bearing of the line are

A. Numerical equal with same sign

B. Numerical unequal with same sign

C.Numerical equal with opposite sign

D. Numerical unequal with opposite sign

Answer: C.Numerical equal with opposite sign

98 Which one of the following is correct formula for Taylor's stability number S_n.
Where, C: cohesion
Fc : factor of safety with respect to cohesion
γ : density of soil
H : height of slope

a) $\frac{c}{\gamma F_c H}$

b) $\frac{\gamma F_c H}{c}$

c) $\frac{\gamma F_c}{H \times c}$

d) $\frac{\gamma}{C F_c H}$

a

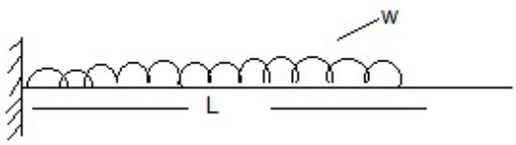
b

c

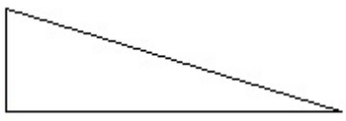
d

Answer: a

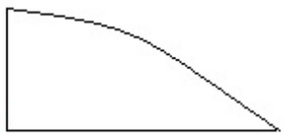
99 The shear force diagram for a cantilever with uniformly distributed load over whole span is



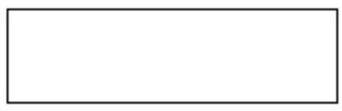
a)



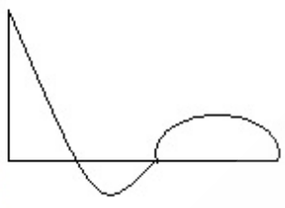
b)



c)



d)



a

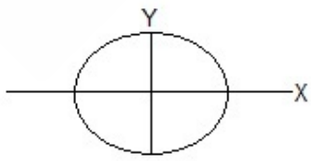
b

c

d

Answer: a

100



The above circle has diameter "D" the ratio of moment of inertia Ixx to the Polar moment of inertia "Ip" for above case is

2

Same

	0.5
	4
Answer:	0.5