



	Jun	nior Engineer Civil Mechanical and Electrical Examination 2023 Paper I	
Exar	n Date	09/10/2023	
Exar	n Time	9:00 AM - 11:00 AM	
Subj	ect	Junior Engineer 2023 Civil Paper I	
Sectio	on : General Int	telligence and Reasoning	
Q.1	Select the opt the first term 9:38:13:?	ption that is related to the third term in the same way as the second term is related to n and the sixth term is related to the fifth term. ? :: 24 : 83	
Ans	🛹 1. 50		
	<b>X</b> 2.48		
	🗙 3.57		
	<b>X</b> 4.44		
Q.2	Which of the f	following numbers will replace the question marks (?) in the given series?	
	8, 10, 24, 58, 1	120,?	
Ans	1.218		
	X 2.234		
	× 3.243		
	<b>X</b> 4.216		
Q.3	Select the con meaningful or 1. Country 2. Continent 3. City 4. Municipaliti	prrect option that indicates the arrangement of the following words in a logical and prder.	
	5. State	<sup>1</sup> y	
Ans	🛷 1. 2, 1, 5	5, 3, 4	
	<b>X</b> 2. 1, 2, 5,	5, 3, 4	
	<b>X</b> 3. 5, 3, 2,	2, 4, 1	
	<b>X</b> 4. 1, 2, 5,	5, 4, 3	
Q.4	Which letter-	-cluster will replace the question mark (?) to complete the given series?	
	XUOA. DYME.	JCKI, PGIO, ?	
Ans	X 1. UKGU		
	🗙 2. VLGU		
	🛷 3. VKGU		
	🗙 4. ULGU	J	
Q.5	Select the opt	ption that is related to the fourth term in the same way as the first term is related to	
	the second te	erm and the fifth term is related to the sixth term?	
	8:1:?:2:2	200:5	
Ans	<b>X</b> 1.64		
	<b>X</b> 2.78		
	<b>X</b> 3.48		
	<b>4</b> . 32		
Q.6	In a certain co as "12". How	code language, "MERITORIOUS" is written as "10" and "OBJECTIONABLE' is written v will "PREPATORY" be written in that language?	
Ans	✔ 1.8		
	<b>X</b> 2.7		
	<b>X</b> 3.6		
	<b>X</b> 4.9		

## Test Prime

## ALL EXAMS, ONE SUBSCRIPTION



70,000+ Mock Tests



600+ Exam Covered



Personalised Report Card



Previous Year Papers



Unlimited Re-Attempt



500% Refund



## **ATTEMPT FREE MOCK NOW**





Q.7	Two statements are given followed by two conclusions numbered I and II. Assuming the statements to be true, even if they seem to be at variance with commonly known facts, decide which of the conclusions logically follow(s) from the statements.
	Statements:
	Some plates are cups.
	All cups are spoons.
	Conclusions:
	I. Some spoons are plates.
	II. All spoons are plates.
Ans	1. Only conclusion I follows
	X 2. Neither conclusion I nor II follows
	X 3. Only conclusion II follows
	X 4. Both conclusions I and II follow
Q.8	Select the correct combination of mathematical signs that can sequentially replace the # signs and balance the given equation. 25 # 8 # 21 # 3 # 5 # 4 # 4
Ans	<b>X</b> 1 <sub></sub> , +, ×, =, ÷, +
	<b>X</b> 2. + <sub>55</sub> ÷, ×, =, +
	<b>X</b> 3, +, ÷, ×, =, +
	✓ 4, +, ÷, =, ×, +
Q.9	Select the option that is related to the fifth term in the same way as the second term is related to the first term and the fourth term is related to the third term. 33 : 627 :: 47 : 893 :: 21 : ?
Ans	1.399
	★ 2.407
	★ 3.371
	× 4.385
Q.10	Select the option that is related to the third word in the same way as the second word is related to the first word. (The words must be considered as meaningful English words and must not be related to each other based on the number of letters/number of consonants/vowels in the word)
	Lyric : Song :: Stanza : ?
Ans	🖌 1. Poem
	X 2. Literature
	🗙 3. English
	🗙 4. Essay











Q.14	Select the figure from the options that can replace the question mark (?) and
	complete the given pattern.
And	
Ans	2 N
	$\times$ $\square$
	^
Q.15	Select the word-pair in which the two words are related in the same way as are the twowords in
	the given pair. (The words must be considered as meaningful English words and must not be related to each other based on the number of letters/number of consonants/vowels in the word.) Cot : Wood
Ans	1. Cloth : Cotton
	X 2. Jewellery: Leg
	X 3. Utensil : Cook
	X 4. Stove : Gas
Q.16	Select the option that represents the correct order of the given words as they would appear in an English dictionary. 1. Unaware 2. Unable 3. Unavoidable 4. Unacceptable 5. Unanimous 6. Unaffected
Ans	× 1.4, 2, 6, 5, 3, 1
	✓ 2. 2, 4, 6, 5, 3, 1
	× 3.2,4,6,5,1,3
	× 4. 2, 4, 5, 6, 3, 1
Q.17	Which letter-cluster will replace the question mark (?) to complete the given series?
	MCWF, OFUE, ? , SLQC, UOOB
Ans	X 1. PHTC
	X 2. PITD
	X 3. OHSE
	🖌 4. QISD





Q 18	Select the correct mirror image of the given figure when the mirror is placed at MN as shown below.
4.10	M
	Lp4f3g7
	I N
Ans	Lb4f3 B2 . L
	Lp4f3g7 <sup>.2</sup> 🐦
	гр4ғз 87 <sub>°×</sub>
	× <sup>4.</sup> \g \color g \color t \color g \color d \color g \co
Q.19	Ram pointed towards a lady and said, "Her daughter is the wife of my son-in-law." What relation
Ans	does Ram have with the woman he pointed towards?
	2. Husband
	X 3. Brother
	X 4. Sister
Q.20	Which of the following terms will replace the question mark (?) in the given series? KLJH, FGEC, ABZX, VWUS, ?
Ans	V 1. QRPN
	X 2. PQSM
	X 3. QRNP
	X 4. URIV
Q.21	Vipul departs from his home and walks 20 m towards the east. He then turns left and walks 15 m. He turns left again and walks 10 m. He then takes a right turn and walks 20 m. He then takes a left turn and walks 14 m. He takes a final left turn and walks 45 m to stop at Point X. How far is he from a pole which is 10 m to the south of his house? (Assume that all the turns are 90° turns only.)
Ans	<b>X</b> 1.10 m
	X 2.6 m
	X 3.14 m
	✓ 4.4 m
Q.22	Select the correct mirror image of the given combination when the mirror is placed at MN as shown below.
	1 B 4 E 7 K 8
Ans	1 B 4 E 7 K 8 🛰
	184E 2K8 ×
	1 B 4 E 2 K 8 <sup>°</sup> ×
	1 B H F 7 K 8 * x





Q.23	Select the correct mirror image of the given figure when the mirror is placed at MN as shown below.
	M
	5 km 2 7 a
	EKM37a
	N N
Ans	
	E k m 3 7 a <sup>-2</sup> 🛰
	E k w E 7 a <sup>. E</sup> X
	<mark>3 km 3 7 a <sup>+</sup> ×</mark>
Q.24	Select the set in which the numbers are related in the same way as are the numbers of
	the following set.
	(NOTE: Operations should be performed on the whole numbers, without breaking down
	the numbers into its constituent digits. E.g., 13 – Operations on 13 such as
	adding/subtracting/multiplying etc. to 13 can be performed. Breaking down 13 into 1 and 3
	and then performing mathematical operations on 1 and 3 is not allowed)
	(7, 5, 24)
	(8, 2, 60)
Ans	× 1. (6, 3, 36)
	2. (9, 3, 72)
	<b>x</b> 3, (6, 3, 18)
	$\times 4 (4, 8, 39)$
	× +. (+, 0, 00)
Q.25	Select the option that is related to the third word in the same way as the second word is related to the first word. (The words must be considered as meaningful English words and must not be related to each other based on the number of letters/number of consonants/vowels in the word)
	Creater & Bailton & Ammun 2
Ane	V 1 War
	X 3. Police
	✓ 4. Soldier
Q.26	Select the number from among the given options that can replace the question mark (?) in the following series
	13, 34, 63, 108, 177, 278, ?
Ans	<b>X</b> 1.491
	2.419
	× 3.432
	<b>x</b> 4.423

















	letter-cluster.
	NTD:OVG::KPM:LRP::?:UXQ
Ans	X 1. TVM
	× 2. SW
	X 3. SUM
	4. TVN
Q.35	Arrange the following words in a logical and meaningful order. 1. city 2. building 3. state 4. country 5. continent
Ans	<b>X</b> 1. 3, 4, 2, 1, 5
	× 2. 2, 3, 4, 5, 1
	<b>3</b> . 2, 1, 3, 4, 5
	<b>X</b> 4. 2, 1, 4, 3, 5
Q.36	Select the option that is related to the third word in the same way as the second word is related to the first word (The words must be considered as meaningful English words and must not be related to each other based on the number of letters/consonants/vowels in the word). Bird : Ornithology :: Plant :
Ans	X 1. Chemistry
	2. Botany
	X 3. Physics
	× 4. Trees
Q.37	Three statements are given followed by three conclusions numbered I, II and III. Assuming the statements to be true, even if they seem to be at variance with commonly known facts, decide which of the conclusions logically follow(s) from the statements.
	No wafer is a toffee. All desserts are chips. Conclusions: I. All chips can never be toffees. II. No dessert is a wafer. III. Some toffees are desserts.
Ans	1. Only I follows
	X 2. None follows
	× 2. Only Lond II follow
	X 4. Uniy III follows
Q.38	Select the option that is related to the fifth letter cluster in the same way as the second letter cluster is related to the first letter cluster and the fourth letter cluster is related to the third letter cluster. JSGXK : ADXIB :: LFCWE : CQTHV :: BDXOF : ?
Ans	X 1. ZOOWX
	🖌 2. SOOZW
	X 3. SOXWZ
	× 4. WXOZD





Q.39	Select the set in which the numbers are related in the same way as are the numbers of the following sets.
	(NOTE: Operations should be performed on the whole numbers, without breaking down the numbers into its constituent digits. Eg., 13 – Operations on 13 such as adding/subtraction/multiplying etc. to 13 can be performed. Breaking down 13 into 1 and 3 and then performing mathematical operations on 1 and 3 is not allowed)
	(6, 12, 9)
	(16. 10, 13)
Ans	<b>X</b> 1. (3, 14, 8)
	× 2. (19, 24, 5)
	<b>3</b> . (15, 7, 11)
	<b>X</b> 4. (13, 38, 4)
Q.40	Seven people, A, B, C, D, E, F and G, are sitting in a straight row, facing north. Only 1 person sits to the left of D. A is an immediate neighbour of D. Only 2 people sit between F and D. Only 3 people sit between C and G. B is not an immediate neighbour of G. Only 2 people sit between E and A.
	Who sits to the immediate left of G?
Ans	X 1.A
	X 2. F
	X 3.E
	🖋 4. D
Q.41	Which letter-cluster will replace the question mark (?) to complete the given series?
	FDQE, KJXM, PPEU, ?, ZBSK
Ans	X 1. VULB
	2. UVLC
	X 3. VUKB
	X 4. VULC
Q.42	In a certain code language, 'CHECK' is written as '110' and 'CORRECT' is written as '114'. How will 'WRONG' be written in that language?
Ans	<b>X</b> 1.106
	× 2.95
	× 3.69
	✓ 4. 63
Q.43	K@L means 'L is the husband of K' K&L means 'K is the mother of L' K#L means 'K is the son of L' If A&B@C#D@E, the how is B related to D?
Ans	🖌 1. Son's wife
	X 2. Sister
	X 3. Mother
	X 4. Daughter
Q.44	Which of the following numbers will replace the question mark (?) in the given series?
	17, 57, 22, 52, ?, 47
Ans	X 1.51
	× 2.23
	✓ 3.27
	X 4.49
Q.45	In a certain code language, 'LESSON' is written as 'IDPPNK' and 'CLASS' is written as 'ZIZPP'. How will 'CHAPTER' be written in that language?
Ans	✓ 1. ZEZWQDO
	× 2. MZQEDZO
	X 3. MDZZOQE
	X 4. DOZEZMQ





Q.46	How many triangles are there in the given figure?
Ans	<ul> <li>✓ 1.9</li> <li>✓ 2.7</li> </ul>
	× 3.5
	× 4.8
Q.47	If '+' means '-', '-' means 'x', 'x' means ' $\div$ ', ' $\div$ ' means '+', then what will come in place of the question mark (?) in the following equation? 13 – 145 × 29 $\div$ 52 + 11 = ?
Ans	<b>X</b> <sup>1.94</sup>
	✓ 2. 106
	X 3.117
	× 4.83
Q.48	Seven people L, M, N, O, P,Q and R are sitting in a straight line adjacent to one another, facing the north (not necessarily in the given order). P is sitting third to the left of Q. N is an immediate neighbour of O and Q. L is sitting third to the right of Q. R is the immediate neighbour of L and M. Who is sitting to the immediate right of P?
Ans	<b>X</b> <sup>1.R</sup>
	× 2. N
	X 3.Q
	• 4. O
Q.49	In a code language, 'COURT' is written as TROOC and 'SPORT' is written as TRIPS. How will 'BLIND' be written in the same language?
Alis	
	× 3. BNELD
	× 4. DNILB





Q.50 A paper is folded and cut as shown below. How will it appear when unfolded?







Q.6	Name the programme launched by the Millistry of Health and Family Welfare to empower all healthcare workers engaged in oxygen management and administration with the essential knowledge and skills.
Ans	★ 1. National Oxygen Supervision Programme
	× 2 National Oxygen Development Programme
	A 3 National Ownern Stewardship Programme
	4 National Owner Management Programme
Q.7	Which of the following is the most common omega-3 fatty acid found in vegetable oils, nuts
۸ne	(especially walnuts), haxseed and leary vegetables that help prevent heart disease and stroke?
	× 2 Eicesapentaenoid acid (EPA)
	X 2. Decesebeve ender locid (DEA)
	X 3. Docosanexaenoic acid (DHA)
Q.8	The Sangeet Natak Akademi of India recognises 8 dance forms of Indian classical dance. Which of the following is NOT included?
Ans	X 1. Bharatanatyam
	🖌 2. Chhau
	X 3. Kuchipudi
	🗙 4. Sattriya
Q٩	What is the dimension of a baskethall court?
Ans	x 1.28 × 22 m
	★ 2.28 × 18 m
	× 3.28 × 20 m
	A 28 x 15 m
	4. 20 * 13 11
Ans	<ul> <li>1. It concerns with the conservation of species in botanic gardens and captive breeding programmes.</li> <li>2. It concerns with the conservation areas as 'warehouses' of biological information.</li> </ul>
	★ 3. It concerns with the cryopreservation of gametes.
	$\mathbf{x}$ 4. It concerns with the protective maintenance of threatened species in zoological parks.
Q.11	What is the correct sequence of the following ports of India from North to South? A. Kochi port B. Mormugao port C. Kandla port D. Mumbai port
Ans	1. C. D. B. A
-	× 2. A B, C, D
	× 3. B.A.D.C
	× 4 A D B C
Q.12	Which of the following Legislative Bills proposed to set-up the Indian Antarctic Authority (IAA)
۸	under the Ministry of Earth Sciences, Government of India?
AIS	1. The indian Antarctic (Amenument) bill, 2022     2. The Indian Antarctic Bill, 2022
	2. The Indian Antarctic Bill, 2022
	X 3. The Indian Antarctic (Amendment) Bill, 2021
	X 4. The Indian Antarctic Bill, 2021
Q.13	The weight loss and marked depletion of subcutaneous fat and muscle mass are characteristic features of which syndrome occurs in infants?
Ans	1. Marasmus
	X 2. Eczema
	X 3. Perussis
	<ul> <li>X 3. Pertussis</li> <li>X 4. Down syndrome</li> </ul>





Q.14	Which of the following is NOT correct regarding the periodic table?
Ans	1. There are 18 periods and 7 groups in the periodic table.
	X 2. Group 2 elements are called alkaline earth metals.
	X 3. Noble gases are included in group 18.
	<ul> <li>★ 4. There are 7 periods and 18 groups in the periodic table.</li> </ul>
Q.15	Tabla maestro Ustad Alla Rakha was a musician trained by Mian Kader Baksh of the
Ans	1. Punjab gharana
	X 2. Farrukhabad gharana
	X 3. Lucknow gharana
	X 4. Delhi gharana
Q.16	Who was the captain of India's Under-19 Women's cricket team that won the inaugural edition of
	the Women's Under-19 T-20 World Cup in January 2023?
Ans	🖌 1. Shafali Verma
	🗙 2. Richa Ghosh
	🗙 3. Archana Devi
	X 4. Sweta Sherawat
Q.17	The total members who participate in the election of president is called
Ans	🗙 1. Elite Election Group
	X 2. First Voters Group
	X 3. President College
	✓ 4. Electoral College
Q.18	According to the Indian Constitution, which of the following is NOT a fundamental duty?
Ans	X 1. To abide by the Constitution and respect its ideals
	X 2. To promote the spirit of brotherhood
	✓ 3. To vote in public election
	X 4. To safeguard public property
Q.19	In which of the following years was the 'New Economic Policy' introduced in India?
Ans	<b>X</b> 1. 1993
	× 2. 1992
	<b>3</b> . 1991
	<b>X</b> 4. 1990
Q.20	A Parliamentary delegation from
4.20	of India Droupadi Murmu at Rashtrapati Bhavan on 7th February 2023.
Ans	X 1. Nepal
	🗙 2. Myanmar
	🖌 3. Bhutan
	X 4. Turkey
Q.21	What is the term for the unwanted and unsolicited messages that are sent over the internet?
Ans	🗙 1. Malware
	🛹 2. Spam
	X 3. Phishing
	X 4. Hacking
Q.22	Which of the following programmes was initiated in 1979 with the objective of upgrading the traditional skills of rural youth belonging to families living below the poverty line, with family
Ans	X 1. Rural-Landless Employment Guarantee Programme ( RLEGP)
	2. Training to Rural Youth for Self Employment (TRYSEM)
	🗙 3. Jawahar Rozgar Yojana (JRY)
	X 4. National Rural Employment Programme (NREP)





Q.23	Who was responsible for killing the last Mauryan King?
Ans	X 1. Simuka
	× 2. Vasudev Kanva
	3. Pushyamitra Sunga
	× 4 Kanishka
Q.24	Which of the following article of the Constitution lays down that the National Flag and National Anthem must be respected?
Ans	★ 1. Art 51A(b)
	× 2 Art 51A (d)
	$\sim$ 3 Art 51A(c)
	✓ 4. ALSTA(a)
Q.25	The geothermal gradient is defined as the increase in temperature with depth in the earth. Accordingly, in normal continental crust, the rate of temperature rise within the first 3 to 5 kilometres of the Earth's surface is approximately
Ans	🗙 1.70 °C/km
	✓ 2. 25 °C/km
	🗙 3. 40 °C/km
	<b>★</b> 4. 10 °C/km
Q.26	How much energy is released from 1 gm of fat?
	x 2. 4.2 Calories
	3. 9 calones
	X 4.5 calories
Ans Q.28 Ans	Hills Regions 1. Javadi Hills a. Eastern Ghats 2. Doddabetta b. Western Ghats 3. Jaintia Hills c. Purvanchal 4. Patkai Hills d. Meghalaya Plateau ✓ 1.1-a, 2-b, 3-d, 4-c X 2. 1-b, 2-a, 3-d, 4-c X 3. 1-a, 2-d, 3-b, 4-c X 4. 1-a, 2-b, 3-c, 4-d What is the horizontal field view of one eye in human beings? ✓ 1. 150°
	🗙 2. 170°
	× 3.50°
	★ 4.90°
Q.29	Article 19 of the Constitution of India had originally guaranteed rights.
Ans	X 1. eight
	$\times$ 2. six
	X 3. five
	4. seven
Q.30	The headquarters of the Ghadar Party was located at which place?
AID	
	X 4. wasnington
I	





,





Q.38	According to the Multidimensional Poverty Index 2022, which was the poorest state?
Ans	🗸 1. Bihar
	🗙 2. Assam
	X 3. West Bengal
	X 4. Uttar Pradesh
Q.39	Khagen Mahanta was a notable person in the folk music of
Ans	1. Assam
	× 2. Andhra Pradesh
	x 3. Uttar Pradesh
	× 4. Odisha
0.40	Which of the following is an inanimate object that forms the environment?
Ans	× 1. Fungi
	2. Water
	× 3. Plants
	× 4 Fish
Q.41	According to the Indian Bureau of mines 2020, which two states of India have the maximum gold ore reserves?
Ans	🛷 1. Bihar and Rajasthan
	X 2. Madhya Pradesh and Andhra Pradesh
	X 3. Karnataka and Uttar Pradesh
	X 4. Andhra Pradesh and Maharashtra
042	How do colours contribute to effective presentation and documents in MS PowerPoint?
Ans	★ 1. Colours make the content appear larger and more prominent.
	× 2. Colours help in copying and pasting content between documents
	X 3 Automatically correct spelling and grammar errors in the text
	4. Colours create a sense of hierarchy and emphasise important information
Q.43	Which of the following is referred to as 'credit money'?
<i>P</i> <b>1</b> 15	$\sim$ 2. Money value < Commonly value
	× 3. Money value = Commodity value
	X 3. Woney value – Commodity value
	4. Ivoney value > commounty value
Q.44	Appointment, posting and promotion of District Judge in a state are made by
Ans	$\times$ 1. Chief justice of the high court of the state in consultation with the governor
	X 2. President in consultation with the High Court
	X 3. Chief Mnister in consultation with Chief justice of High Court
	4. Governor in consultation with the high court
0.45	
Q.45 Ans	✓ 1 Pressure and mass
	× 2. Mass
	✓ 3 Temperature and pressure
	4. Temperature
Q.46	The book 'Mitakshara' is related to which of the following fields?
AI15	
	X 3. Finance





Q.47	According to Census of India 2011, what was the sex ratio of Tamil Nadu?
Ans	× 1.991
	× 2.993
	✓ 3.996
	X 4.931
Q.48	In September 2022, who among the following was honoured with the Dadasaheb Phalke Award for the year 2020?
Ans	X 1. Vinod Khanna
	X 2. Amitabh Bachchan
	X 3. Rajinikanth
	🖌 4. Asha Parekh
Q.49	Whose invasion of India resulted in the third battle of Panipat?
Ans	X 1. Babur
	🛹 2. Ahmad Shah Abdali
	🗙 3. Nadir Shah
	🗙 4. Dost Mohammad
Q.50	Match the column-A with column-B.
	Column-A (Rock) Column-B (Structure type)
	i. Sedimentary rocks a. Stratification and lamination
	ii. Igneous rocks b. crystalline structure
	iii. Metamorphic rocks c. Foliation
Ans	1. i-a, ii-b, iii-c
	X 2. i-b, ii-a, iii-c
	🗙 3. i-c, ii-b, iii-a
	X 4. i-a, ii-c, iii-b
Sectio	on : General Engineering Civil and Structural
Q.1	
	Consider the following methods used to establish a point in the field. (Refer to the figure below.)
	MN
	Method 1: Point O is plotted by measuring only the distances MO and NO.
	Method 2: Point O is plotted by measuring only the angles NMO and MNO.
	Which of these methods also represents the principle of trigonometrical levelling?
Ans	X 1. Method 1 only
	2. Method 2 only
	X 3. Both Method 1 and Method 2
	X 4. Neither Method 1 nor Method 2





Q.2

A cantilever beam is subjected to two point loads as shown in the given diagram. Find the shear force and bending moment acting at the support of the beam.







Q.9	A map of a certain area is drawn on a sheet. The distance on the map is 1 dm and that on the ground is 5 km. The representative fraction for the given data is (Note that 'dm' means decimetre.)
Ans	$\times^{1.} \frac{1}{5000}$
	2. 1
	$\times \frac{1}{500}$
	3. 1
	500000
	4
	50000
Q.10	According to IS 800:2007, steel purlins are primarily designed as
Ans	X 1. compression members
	2. flexural members
	X 3. tension members
	X 4. torsional members
Q.11	The distance between two points measured during a hot summer by using a 30 m long chain was 2.4 km. At the end of the day's work, it was found that the chain was 2 decimetre longer. Which of the following is the correct option?
Ans	imes 1. The measured distance is 16 m more than the actual distance.
	$\chi$ 2. The measured distance is 1.6 cm more than the actual distance.
	✓ 3. The measured distance is 1600 cm less than the actual distance.
	$\chi$ 4. The measured distance is 16 cm less than the actual distance.
Q.12	Which of the following statements is correct with respect to compaction and consolidation?
Ans	★ 1. Compaction is valid for cohesive soils, whereas consolidation is applicable for all types of
	soils.
	$\chi$ 2. Both compaction and consolidation degrade the engineering properties of soil.
	3. Both compaction and consolidation improve the engineering properties of soil.
	X 4. Compaction releases pore water, whereas consolidation releases pore air.
Q.13	The coefficient of passive pressure K <sub>p</sub> is if the coefficient of active pressure K <sub>a</sub> is
Ans	× 1.05
	× 2.0.25
	3.4
	× 4.0.33
014	
Q.14 Ans	The scrap value of a building is considered of the cost of construction.
A15	× 2 15%
	× 3.5%
	4 10%
Q.15	The A-line in the unified classification system table is used to determine the plasticity index ( $I_P$ ) of soil sample on its liquid limit ( $W_L$ ). The equation for the A-line is given as
Ans	$\times$ 1. I <sub>P</sub> = 0.5 (20 - W <sub>L</sub> )
	$\sim 2. \text{ Ip} = 0.73 (\text{W}_{\text{L}} - 20)$
	$\times$ 3. Ip = WL - 40
	$X 4. I_{\rm P} = 0.73 (40 - W_{\rm L})$





Q.16	Read the given statements about crop water requirement and select the correct option. Statement 1: Duty will be less for a crop requiring more water. Statement 2: The water lost due to percolation will be more and hence the duty will be more
Ans	I. Statement 1 is true and statement 2 is false
	× 2. Both statement 1 and statement 2 are false
	★ 3. Both statement 1 and statement 2 are true
	★ 4. Statement 1 is false and statement 2 is true
Q.17	A cantilever beam is loaded as per the given diagram. Find the bending moment acting at the mid span of beam.
	20 kN 30 kN
	1m 1m
•	
Ans	X 1.5000 N-M
	X 3.3000 N-m
	🛷 4. 30 kN-m
Q.18	As per IS 11624-1986, what will be the water quality rating of irrigation water when electrical conductivity (EC) is in the range of 1500 to 3000 (micromhos/cm)?
Ans	X 1. Very high
	🗙 2. High
	X 3. Low
	🛹 4. Medium
Q.19	In the centesimal system of angular measurement, 1 Circumference =
Ans	× 1.180 grads
	× 2.360 grads
	× 3. 100 grads
	4. 400 grads
0.20	Superplasticisers are also called
Ans	1. high-range water reducers
	× 2. retardants
	× 3. accelerators
	× 4. low-range water reducers
Q.21	Which of the following statements with respect to characteristics of solid waste is correct? 1 The refuse of a traical Indian city has more garbage percentage (hyweight) than that of a city.
715	in the USA
	X 2. The refuse of a typical Indian city has more rubbish percentage (by weight) than that of a city in the USA
	X 3. The refuse of a typical Indian city has less garbage percentage (by weight) than that of a city in the USA
	$\chi$ 4. The refuse of a typical Indian city has less density than that of a city in the USA
Q.22	Which of the following is an acoustical property of the construction material?
Ans	1. Transmission
	X 2. Hygroscopicity
	X 3. Creep
	X 4. Thermal resistivity
Q.23	Which of the following is NOT a structural stability criterion of a gravity dam?
Ans	X 1. Overturning
	X 2. Sliding
	X 3. Crushing
	4. Overspill





	Which of the following is NOT the requirement of an ideal permanent way?
Ans	X 1. There must be certain amount of elasticity in the track.
	X 2. The drainage system must be perfect.
	✓ 3. It should always be straight.
	X 4. There must be provisions of easy renewals.
Q.25	In a compaction test, the dry unit weight stops increasing after optimum moisture content
	because:
Ans	X 1. of bulking of soil
	X 2. of capillary action
	$\chi$ 3. the electrical double layer stops expanding
	✓ 4. water particles start occupying space of soil grains
Q.26	Which of the following is NOT employed in the secondary treatment of sewage?
Ans	X 1. Contact beds
	2. Skimming tanks
	X 3. Trickling filters
	X 4. Sand filters
Q.27	Under which of the following conditions will a steel column fail in buckling?
Ans	X 1. A steel column cannot fail in buckling.
	X 2. less than 180
	✓ 3. greater than 180
	X 4. The column is short.
0.28	Which of the following is NOT a field of application of sulphate resisting comput?
Ans	1. Dams
	× 2. Marine structures
	× 3. Foundation and basement
	× 4. Sewage treatment works
4.23	In traffic control, the conflict points are reduced to bare minimum and the delays are minimised
Ans	In traffic control, the conflict points are reduced to bare minimum and the delays are minimised by designing: 1. horizontal curve 2. road intersection X 3. bridges
Ans	In traffic control, the conflict points are reduced to bare minimum and the delays are minimised by designing: 1. horizontal curve 2. road intersection 3. bridges 4. super-passage
Ans Q.30	In traffic control, the conflict points are reduced to bare minimum and the delays are minimised by designing:
Ans Q.30 Ans	In traffic control, the conflict points are reduced to bare minimum and the delays are minimised by designing: 1. horizontal curve 2. road intersection 3. bridges 4. super-passage Surfaces painted by
Ans Q.30 Ans	In traffic control, the conflict points are reduced to bare minimum and the delays are minimised by designing: 1. horizontal curve 2. road intersection 3. bridges 4. super-passage Surfaces painted by shine like radium dials after the source of light has been cut off. 1. enamel paint 2. emulsion paint
Ans Q.30 Ans	In traffic control, the conflict points are reduced to bare minimum and the delays are minimised by designing: 1. horizontal curve 2. road intersection 3. bridges 4. super-passage Surfaces painted by shine like radium dials after the source of light has been cut off. 1. enamel paint 2. emulsion paint 3. plastic paint
Ans Q.30 Ans	In traffic control, the conflict points are reduced to bare minimum and the delays are minimised by designing: 1. horizontal curve 2. road intersection 3. bridges 4. super-passage Surfaces painted by shine like radium dials after the source of light has been cut off. 1. enamel paint 2. emulsion paint 3. plastic paint 4. oil paint
Ans Q.30 Ans Q.31	In traffic control, the conflict points are reduced to bare minimum and the delays are minimised by designing: 1. horizontal curve 2. road intersection 3. bridges 4. super-passage Surfaces painted by
Ans Q.30 Ans Q.31 Ans	In traffic control, the conflict points are reduced to bare minimum and the delays are minimised by designing:
Ans Q.30 Ans Q.31 Ans	In traffic control, the conflict points are reduced to bare minimum and the delays are minimised by designing: 1. horizontal curve 2. road intersection 3. bridges 4. super-passage Surfaces painted by
Ans Q.30 Ans Q.31 Ans	In traffic control, the conflict points are reduced to bare minimum and the delays are minimised by designing: 1. horizontal cure 2. road intersection 3. bridges 4. super-passage Surfaces painted by
Ans Q.30 Ans Q.31 Ans	In traffic control, the conflict points are reduced to bare minimum and the delays are minimised by designing: 1. horizontal curve 2. road intersection 3. bridges 4. super-passage Surfaces painted by
Ans Q.30 Ans Q.31 Ans	In traffic control, the conflict points are reduced to bare minimum and the delays are minimised by designing: 1. horizontal curve 2. road intersection 3. bridges 4. super-passage Surfaces painted by
Ans Q.30 Ans Q.31 Ans Q.32	In traffic control, the conflict points are reduced to bare minimum and the delays are minimised by designing: 1. horizontal curve 2. road intersection 3. bridges 4. super-passage Surfaces painted by
Ans Q.30 Ans Q.31 Ans Q.31 Ans	In traffic control, the conflict points are reduced to bare minimum and the delays are minimised by designing: <ul> <li>1. horizontal curve</li> <li>2. road intersection</li> <li>3. bridges</li> <li>4. super-passage</li> </ul> <li>Surfaces painted by</li>
Ans Q.30 Ans Q.31 Ans Q.32 Ans	In traffic control, the conflict points are reduced to bare minimum and the delays are minimised by designing: 1. horizontal curve 2. road intersection 3. bridges 4. super-passage Surfaces painted by
Ans Q.30 Ans Q.31 Ans Q.32 Q.32 Ans	In traffic control, the conflict points are reduced to bare minimum and the delays are minimised by designing:





Q.33	If the section factor and the hydraulic depth for a rectangular channel are 40 m and 4 m, respectively, then calculate the top width of the channel.
Ans	<b>X</b> 1.4 m
	× 2.3 m
	<b>3</b> .5 m
	<b>X</b> 4.6 m
Q.34	A fine grained soil has liquid limit of 55 and plastic limit of 20 as per plasticity chart. According to
<b>A</b> mo	IS classification, the soil is represented by which of the following letter symbols?
Ans	
Q.35	The type of timber recommended for constructional purpose, whose modulus of elasticity in bending is above 12.5 kN/mm <sup>2</sup> , is classified as timber.
Ans	🛹 1. Group A
	X 2. Group B
	X 3. Group C
	X 4. Group D
Q.36	The repair works that are usually carried out every fourth year are known as
Ans	X 1. annual repair works
	X 2. biennial repair works
	✓ 3. quadrennial repair works
	X 4. regular repair works
Q.37	The total area enclosed by an irrigation canal that can be included in an irrigation project for
Ane	supplying water to agricultural land by a network of canals is known as
AIS	
	A 3 gross command area
	3. gloss command area
Q.38	Which of the following is obtained by rotating a log of wood against a sharp knife of rotary cutter?
AIS	× 2 Playcod
	× 3 Batten board
	× 4 Laminboard
Q.39	A pump has to pump water through a pipeline of height of 10 m above the ground at a rate of 0.2 m <sup>3</sup> /sec. The water in a sump tank is 5 m below the ground level. Neglect head loss due to friction,
	the pumping power required would be (Consider $g = 10 \text{ m/s}^2$ ).
Ans	🛹 1. 30 KW
	X 2.22 KW
	¥ 3.25 KW
	X 4. 33 KW
Q.40	Which method involves driving piles along both sides of an existing wall and inserting a needle in the form of pile caps through the existing one?
Ans	X 1. Mscellaneous method
	X 2. Pit method
	X 3. Vibro-flotation
	✓ 4. Pile method
Q.41	The standard consistency test of cement is conducted by using
Ans	X 1. Blaine's permeability apparatus
	🗙 2. Casagrande's apparatus
	🛹 3. Vicat's apparatus
	X 4. Le Chatelier's apparatus





Q.42	A manometer is an instrument used for measuring the pressure acting on a column of fluid, which consists of a U-shaped tube of liquid in which the difference in pressures acting in the two arms of the tube causes the liquid to reach different heights in the two arms. Which of the following is NOT a limitation of the manometer?
Ans	X 1. Large and bulky size
	✓ 2. Difficulty in construction
	X 3. Need for levelling
	X 4. No over-range protection
Q.43	Which of the following keeps a record of receipts, issues and running balance of certain items of stock, especially of fitting items?
Ans	X 1. Value account
	X 2. Stock items
	X 3. Quantity account
	🛹 4. Bin card
Q.44	Which of the following types of trees belong to the endogenous trees?
Ans	X 1. Deodar
	🖌 2. Bamboo
	X 3. Pine
	X 4. Oak
Q.45	Calculate the hook length of the bar in one side with a diameter of 16 mm.
Ans	★ 1. 120 mm
	× 2.100 mm
	✓ 3. 144 mm
	x 4. 166 mm
Q.46	Select the correct option for the given statements related to the field test of cement.
	Statement 1: When you insert your hand in a bag of cement, it should give you a hot feeling. Statement 2: In adulteration test, take a pinch of cement and feel (rub) between the fingers; it should give a smooth feeling and not a gritty feeling.
Ans	X 1. Statement 1 is true and statement 2 is false
	✓ 2. Statement 1 is false and statement 2 is true
	X 3. Both statement 1 and statement 2 are true
	X 4. Both statement 1 and statement 2 are false
Q.47	A proper compaction of freshly prepared concrete results in: (i) Achieving maximum strength of concrete (ii) Expelling entrapped air in concrete (iii) Change in fineness modulus of aggregate
Ans	× 1. (i), (ii), and (iii)
	2. Both (i) and (ii)
	🗙 3. Only(i)
	✓ A Only/ii)





## Q.48

Following are the observations made on a closed traverse.

Line	Fore	Back
	Bearing	Bearing
PQ	35° 20'	216° 40'
QR	155° 30'	336° 30'
RS	293°	113°
SP	10° 50'	191° 10'

If the bearing of Line RS is not affected by local attraction, the correction that needs to be applied to each angle is \_\_\_\_\_.

Ans	✓ 1. – 0° 40'
	<b>×</b> 2. − 2° 40′
	<b>X</b> 3. + 2° 40′
	<b>X</b> 4. + 0° 40'
Q.49	According to IS 456:2000, for limit state method of collapse in flexure, which of the following assumptions is correct?
Ans	$m{\chi}$ 1. Plane section normal to axis does not remain plane after bending.
	X 2. The tensile strength of the concrete is taken into account.
	3. The maximum strain in concrete at the outermost compression fibre is taken as 0.0035 in boarding.
	<ul> <li>✓ 4. The relationship between the stress strain distribution in concrete is assumed to be straight.</li> </ul>
0.50	
Q.50	Select the correct option for the given statements.
	Statement 1: Bamboo can be utilised as a building material for scaffolding, bridges, houses and buildings.
	Statement 2: Bamboo, like wood, is a natural composite material with a low strength-to-weight
Ans	1. Statement 1 is true and statement 2 is false
	X 2. Both statement 1 and statement 2 are true
	X 3. Both statement 1 and statement 2 are false
	X 4. Statement 1 is false and statement 2 is true
Q.51	The shear strength of an RCC beam depends on which of the following factors?
Ans	✓ 1. The grade of the concrete
	× 2. The zone of fine aggregate
	X 3. The type of cement
	X 4. The grade of the steel
Q.52	To get the corresponding lengths, we mustone breadth to the long wall and one breadth from the short wall from the centre line.
Ans	X 1. subtract; add
	X 2. add; add
	3. add; subtract
	X 4. subtract; subtract
Q.53	The total amount of dissolved salts allowable concentrations in mixing water in order to obtain a good strength concrete in terms of parts per million (ppm) as per IS 456 is
Ans	🛹 1. 15000 ppm
	X 2. 2000 ppm
	X 3. 10000 ppm
	X 4. 1000 ppm
Q.54	If a cantilever retaining wall is to retain soil to its full height H, for the analysis of bending moment at its base, the distance from the base where the total force due to backfill acts, is
Ans	X 1.H
	X 2.0.5 H
	X 3.0.25 H
	🖌 4. 0.33 H





0.55	
Q.55 Ans	In a shrinkage limit experiment, mercury is used for:
	2 determine dryvolume of soil
	2. determine volume at plastic limit
	$\sim 4$ fill the voids of soil sample
Q.56	Which of the following is the most important property of the section in a compression member of any steel structure?
Ans	× 1. Weight of material
	× 2. Section modulus
	3. Noment of inertia
Q.57	is a method of measuring the undrained shear strength of a cohesive soil.
Ans	
	X 2. triaxial test
	X 3. direct shear test
	4. vane shear test
Q.58	The constant head permeability test is used for
Ans	X 1. organic soil
	X 2. clayey soil
	X 3. fine grained soil
	4. coarse grained soil
Q.59	Thermal expansion gives temperature stresses that are resisted by the weight of the rails. If the resistance provided per km of rail length is 700 kg, then find the maximum length of the continuous welded track that can be provided, neglecting all other factors.
	Given for the rail:
	Area of cross-section = $50 \text{ cm}^2$ .
	Modulus of elasticity = $2 \times 10^6$ kg/cm <sup>2</sup> .
	Coefficient of thermal expansion = $1.2 \times 10^{-5/\circ}$ C
	Bise in temperature = $35^{\circ}C$
Δns	× 1.30 km
	× 2 60 m
	3. 60 km
	<b>x</b> 4.30 m
0.00	
Q.60	extensively used in India is
Ans	X 1. weighing-bucket type rain gauge
	2. Symon's rain gauge
	X 3. tipping-bucket type rain gauge
	X 4. float type rain gauge
Q.61	A reinforced concrete retaining structure that provides skeletal support to earthen materials is called
Ans	X 1. lateral pressure
	🛹 2. backfill
	X 3. plasticity
	X 4. erosion
Q.62	What is the meaning of 'ISMB 200' in the steel design?
Ans	1. Indian standard medium weight beams of depth 200 mm
	imes 2. Indian standard maximum weight beams of depth 200 mm
	imes 3. Indian standard mean weight beams of depth 200 mm
	imes 4. Indian standard mild weight beams of depth 200 mm





			Tangential	Deflection	Theodo	olite reading at	
	Point	Chord Length	Angle	Angle	Point of Curve	Point of Tangency	_
	P1	12.26 m	0° 21' 25"	A	0° 21' 25"		-
	P2	20 m	1° 12' 5"		В		-
	P3	20 m	1° 12' 5"			С	-
	P4	20 m	1º 12' 5"	3° 57' 40"			-
	The velue				no oti volu		
Δης	The value	$= 0^{\circ} 21' 25'' = 1^{\circ}$	e,e 33' 30": C = 1	and, res 82° 45' 35"	spectively.		
-115	× 2. A=	= 0° 21' 25"; B = 1°	33' 30"; C = 1	77° 14' 25"			
	3. A:	= 0° 21' 25": B = 1°	° 33' 30": C = 3	357° 14' 25"			
	× 4. A=	= 0° 21' 25"; B = 1°	54' 55"; C = 1	77° 14' 25"			
<b>Q.64</b>	Which of t	the following is a to radial lines?	type of contou	uring method	that can be effecti	vely used in a hilly terra	in
Ans	🥜 1. Ta	cheometric metho	bd				
	🗙 2. Ho	rizontal control me	ethod				
	🗙 3. Ve	rtical control meth	bd				
	🗙 4. Me	thod of cross-sec	tion				
Q.65	During the	e particle board co	onstruction by	/ pressing in	the parallel plates	process, what is the	
Ans	× 1. A	50	is with respec		e of the board?		
		5					
	✓ <sup>2</sup> . 0	00					
	× 3. 9	0°					
	X 4. 3	0°					
<b>Q.66</b>	The speci	fic energy of flow	is the energy	per unit weig	ght of water with re	espect to the channel	
Δης	bottom as	acific energy decre	of the channel	bottom goes	s down,	·	
	2 sr	ecific energy acord					
	✓ 2. op ✓ 3 sn	ecific energy more	tant				
	▲ 0.0p	ecific energy is no	t depended or	denth			
	<b>N</b> 4. op	come energy is no					
Q.67	If a pitot to	ube is placed with	its nose faci	ng downstrea	am, the liquid:		
Ans	1.	alls in the tube	to a height	of $\frac{v^2}{2}$			
	Ť		-	2g			
	2.			$v^2$			
	∧ ri	ises in the tube	to a height	of 2g			
	<b>~</b> 3.			_			
	<u> </u>	loes not rise i	n the tube				
	🗙 <sup>4.</sup> d	oes not fall in	the tube				
Q.68	According tension de	y to IS 456:2000, T epends on the:	he value of de	esign bond st	tress in limit state	method for plain bars in	
Ans	🗙 1. gra	ade of the steel					
	🗙 2. ler	igth of the bar					
	🕜 3. gr	ade of the concret	е				
	🗙 4. no	ne of the given opt	ion				
Q.69	As per the	e Dicken's formula	a Q <sub>p</sub> = C.M <sup>3/4</sup>	for the calcu	lation of peak drair	age discharge, the tern	n
Ans	× 1. fim	e of concentration					
	2.02	tchment area in so	a. km.				
	v		· · · · · ·				
	🗙 3 slo	pe of the around s	surface				





	X 1.66°29 W			
	🗙 2. 23° 31' W			
	🗙 3. 66° 29' E			
	🕜 4. 23° 31' E			
2.71	What is the stand	lard atmospheric press	sure at sea level?	
Ans	🗙 1. 1.5 bar			
	🛹 2. 1.013 bar			
	🗙 3. 1013 mml	Чg		
	🗙 4. 1.3 bar			
<b>Q.72</b>	Which of the give waste?	n options is the best su	uited condition for energy recovery from municipal solid	
Ans	🗙 1. More mois	ture content		
	🗙 2. Presence	of more non-renewable	resources like glass	
	🗙 3. Presence	of inorganic matter such	n as metal	
	🛹 4. High calo	rific value of solid waste		
Q.73	Select the correct	t statement related to	water distribution pipe systems.	
AI IS	V 2 Device of	es are provided at all the		
		s are provided at all the	e nigh points.	
	X 3. Air valves	are provided at all the lov	w points.	
	X 4. Sluice valv	es are provided only one	ce, at the start of pipe system.	
Ans	Grade of steel : F b = width of the b d = effective dept Use limit state m $1.2.66bd^2$	e : M20 e415 eam h of the beam ethod of design:	nced singly reinforced beam using the following data.	
Ans	Grade of steel : F b = width of the b d = effective dept Use limit state m 1. 2.66bd2 2. 2.96bd2 3. 2.76bd2 4. 2.07bd2	e : M20 e415 eam h of the beam ethod of design:	nced singly reinforced beam using the following data.	
Ans Q.75	Grade of steel : F b = width of the b d = effective dept Use limit state m 1.2.66bd2 2.2.96bd2 3.2.76bd2 4.2.07bd2 Following a	e:M20 eam h of the beam ethod of design: are the observatio	nced singly reinforced beam using the following data.	
Ans Q.75	Grade of steel : F b = width of the b d = effective dept Use limit state m X 1.2.66bd2 X 2.2.96bd2 3.2.76bd2 X 4.2.07bd2 Following a Line	e : M20 eam h of the beam ethod of design: are the observatio Fore Bearing	nced singly reinforced beam using the following data.	
Ans Q.75	Grade of steel : F b = width of the b d = effective dept Use limit state m 1.2.66bd2 2.2.96bd2 3.2.76bd2 4.2.07bd2 Following a Line AB	e : M20 s415 eam h of the beam ethod of design: are the observatio Fore Bearing 10° 20'	nced singly reinforced beam using the following data.	
Ans Q.75	Grade of steel : F b = width of the b d = effective dept Use limit state m X 1.2.66bd2 X 2.2.96bd2 3.2.76bd2 X 4.2.07bd2 Following : Line AB BC	e : M20 s415 eam h of the beam ethod of design: are the observatio Fore Bearing 10° 20' 155° 30'	nced singly reinforced beam using the following data.	
Ans Q.75	Grade of steel : F b = width of the b d = effective dept Use limit state m 2.2.96bd2 2.2.96bd2 3.2.76bd2 4.2.07bd2 Following a Line AB BC CA	e : M20 e415 eam h of the beam ethod of design: are the observatio Fore Bearing 10° 20' 155° 30' 290°	nced singly reinforced beam using the following data.	
Ans	Grade of steel : F b = width of the b d = effective dept Use limit state m × 1.2.66bd2 × 2.2.96bd2 × 3.2.76bd2 × 4.2.07bd2 Following a Line AB BC CA The total en	e : M20 s415 eam h of the beam ethod of design: are the observatio Fore Bearing 10° 20' 155° 30' 290° ror is	nced singly reinforced beam using the following data.	
Ans Q.75	Grade of steel : F b = width of the b d = effective dept Use limit state m X 1.2.66bd2 X 2.2.96bd2 X 2.2.96bd2 X 4.2.07bd2 Following : Line AB BC CA The total en X 1.+3° 0'	e : M20 s415 eam h of the beam ethod of design: are the observation Fore Bearing 10° 20' 155° 30' 290° ror is	nced singly reinforced beam using the following data.	
Ans Q.75	Grade of steel : F b = width of the b d = effective dept Use limit state m $\checkmark$ 1. 2.66bd2 $\checkmark$ 2. 2.96bd2 $\checkmark$ 3. 2.76bd2 $\checkmark$ 4. 2.07bd2 Following a Line AB BC CA The total en $\checkmark$ 1. + 3° 0' $\succ$ 2 3° 0'	e : M20 s415 eam h of the beam ethod of design: are the observatio Fore Bearing 10° 20' 155° 30' 290° ror is	nced singly reinforced beam using the following data.	
Ans Q.75	Grade of steel : F b = width of the b d = effective dept Use limit state m $\times$ 1.2.66bd2 $\times$ 2.2.96bd2 $\times$ 3.2.76bd2 $\times$ 4.2.07bd2 Following a Line AB BC CA The total en $\sim$ 1.+3° 0' $\times$ 23° 0' $\times$ 31° 0'	e : M20 e415 eam h of the beam ethod of design: are the observation Fore Bearing 10° 20' 155° 30' 290° Tor is	nced singly reinforced beam using the following data.	
Ans Q.75	Grade of steel : F b = width of the b d = effective dept Use limit state m $\times$ 1.2.66bd2 $\times$ 2.2.96bd2 $\checkmark$ 3.2.76bd2 $\times$ 4.2.07bd2 Following a Line AB BC CA The total en $\checkmark$ 1.+3° 0' $\times$ 23° 0' $\times$ 31° 0' $\times$ 4.+1° 0'	e : M20 e415 eam h of the beam ethod of design: are the observatio Fore Bearing 10° 20' 155° 30' 290° ror is	nced singly reinforced beam using the following data.	
Ans Q.75 Ans	Grade of steel : F b = width of the b d = effective dept Use limit state m $\times$ 1.2.66bd2 $\times$ 2.2.96bd2 $\times$ 3.2.76bd2 $\times$ 4.2.07bd2 Following a Line AB BC CA The total en $\sim$ 1.+3°0' $\times$ 23°0' $\times$ 31°0' $\times$ 4.+1°0' Which of the following a	e : M20 e415 eam h of the beam ethod of design: are the observatio Fore Bearing 10° 20' 155° 30' 290° ror is	age of the manometer?	
Ans Q.75 Ans Q.76 Ans	Grade of steel : F b = width of the b d = effective dept Use limit state m $\approx$ 1.2.66bd2 $\approx$ 2.2.96bd2 $\approx$ 3.2.76bd2 $\approx$ 4.2.07bd2 Following : Line AB BC CA The total en $\approx$ 1.+3° 0' $\approx$ 23° 0' $\approx$ 31° 0' $\approx$ 4.+1° 0' Which of the folk $\approx$ 1. Simple co	e : M20 s415 eam h of the beam ethod of design: are the observatio Fore Bearing 10° 20' 155° 30' 290° ror is wing is NOT an advantanstruction	nced singly reinforced beam using the following data.	
Ans Q.75 Ans Q.76 Ans	Grade of steel : F b = width of the b d = effective dept Use limit state m $\times$ 1.2.66bd <sup>2</sup> $\times$ 2.2.96bd <sup>2</sup> $\checkmark$ 3.2.76bd <sup>2</sup> $\times$ 4.2.07bd <sup>2</sup> Following a Line AB BC CA The total en $\checkmark$ 1. + 3° 0' $\times$ 2 3° 0' $\times$ 3 1° 0' $\times$ 4. + 1° 0' Which of the follo $\propto$ 1. Simple co $\sim$ 2. Suitability	e : M20 s415 eam h of the beam ethod of design: are the observatio Fore Bearing 10° 20' 155° 30' 290° ror is wing is NOT an advanta nstruction for use in low-pressure a	age of the manometer?	
Ans Q.75 Ans Q.76 Ans	Grade of steel : F b = width of the b d = effective dept Use limit state m $\times$ 1.2.66bd2 $\times$ 2.2.96bd2 $\times$ 3.2.76bd2 $\times$ 4.2.07bd2 Following a Line AB BC CA The total en $\sim$ 1.+3° 0' $\times$ 23° 0' $\times$ 31° 0' $\times$ 4.+1° 0' Which of the follo $\propto$ 1. Simple co $\times$ 2. Suitability $\sim$ 3. Small ope	e : M20 s415 eam h of the beam ethod of design: are the observatio Fore Bearing 10° 20' 155° 30' 290° Tor is wing is NOT an advanta instruction for use in low-pressure a erating range	nced singly reinforced beam using the following data.	





<b>Q</b> .77	To increase the seepage flow length,	are provided on the cut-off walls of the
Ans	★ 1. toe walls	
	$\mathbf{X}$ 3. inverted filters	
	✓ 4. sheet piles	
Q.78	Warning signs are also known as	
Ans	🗙 1. prohibitory signs	
	🗙 2. mandatory signs	
	🗙 3. regulatory signs	
	✓ 4. cautionary signs	
Q.79	Match the following.	
	Air Pollutant	Effect
	I. Carbon monoxide	A. Asphyxia
	II. Halogenated solvents	B. Attack(s) the liver
	III. Hydrocarbons	C. Cause(s) cancer
Ane		· · · · · · · · · · · · · · · · · · ·
A115		
	🗙 2. I-C, II-A, III-B	
	✔ 3. I-A, II-B, III-C	
	🗙 4. I-C, II-B, III-A	
<b>Q.</b> 80	The bearing of the magnetic meridian of a line is East, then the true bearing is	S 32° 10' W. If the magnetic declination is 7° 40'
Ans	<b>★</b> 1. S 25° 30' W	
	2 S 30° 50' W	
	2.339 50 W	
	<b>X</b> 3.212° 10'	
	× 4. 205° 30'	
Q.81	Select the option that is appropriate regarding the and Reason. Assertion: The orographic type of precipitation the get lifted up to higher altitudes, due to presence of Reason: Moving masses of moist air are lifted up as barriers and consequently, they undergo cool	e following two statements labelled Assertion at is caused by moving masses of moist air may of mountains as barriers. to higher altitudes due to presence of mountains ng, condensation and precipitation.
Ans	$\mathbf{X}$ 1. Assertion is true, but Reason is false.	
	imes 2. Both Assertion and Reason are false.	
	3. Both Assertion and Reason are true and R	eason is the correct explanation of Assertion.
	$\star$ 4. Both Assertion and Reason are true, but Re	ason is not the correct explanation of Assertion.
Q.82	As per IS 3495 part-3 (1992), soluble salts, if pres	ent in bricks, will cause efflorescence on the
	surface of bricks. If the white deposits cover abo	ut 10% of the surface, the efflorescence is said
Anc	1 slight	
GIP		
	X 2. neavy	
	X 3. moderate	
	🗙 4. nil	
Q.83	Consider the following conditions: 1. Concentrated loads are placed near beam sup 2. The depth of beam section is small, and the be The design of a beam is governed by shear under	oorts. am is loaded uniformly. which of the following conditions?
Ans	★ 1. Neither 1 nor 2	
. 10		
	🗙 3. 1 only	
	✓ 4. Both 1 and 2	





Q.84	In measurement of masonry activity, no deduction is made for		
Ans	✓ 1. the end of purlin up to 0.05 m <sup>2</sup>		
	$\times$ 2. the end of a beam with cross sectional area > 0.05 m <sup>2</sup>		
	✗ 3. wall plates exceeding 10 cm thickness		
	X 4. bed plates exceeding 10 cm thickness		
Q.85	Select the correct option for the given statements. Statement 1: In level crossing, the canal water and drain water are allowed to intermingle with each other. Statement 2: A level crossing is generally provided when a large canal and huge drainage approaches each other practically at the same level.		
Ans	X 1. Statement 1 is true and statement 2 is false		
	2. Both statement 1 and statement 2 are true, and statement 2 is the correct explanation of statement 1		
	X 3. Both statement 1 and statement 2 are true, but statement 2 is not the correct explanation of statement 1		
	X 4. Statement 1 is false and statement 2 is true		
Q.86	The Froude number is the ratio of two forces, which are:		
Ans	✓ 1. inertia force and gravity force		
	X 2. inertia force and pressure force		
	X 3. viscous force and buoyancy force		
	X 4. buoyancy force and inertia force		
Q 87	Pavements which have low or peoligible flexural strength are called		
Ans	X 1. semi rigid pavements		
	× 2. rigid pavements		
	3. flexible pavements		
	× 4. cement concrete and gravel roads		
0.00	Which of the following times of numps about the selected in order to nump the services from a		
Q.00	which of the following types of pumps should be selected in order to pump the sewage from a		
	septic tank to the water treatment system?		
Ans	x 1. Vertical sump pump		
Ans	<ul> <li>septic tank to the water treatment system?</li> <li>X 1. Vertical sump pump</li> <li>X 2. Screw pump</li> </ul>		
Ans	<ul> <li>septic tank to the water treatment system?</li> <li>1. Vertical sump pump</li> <li>2. Screw pump</li> <li>3. Submersible pump</li> </ul>		
Ans	<ul> <li>septic tank to the water treatment system?</li> <li>1. Vertical sump pump</li> <li>2. Screw pump</li> <li>3. Submersible pump</li> <li>4. Progressive cavity pump</li> </ul>		
Ans Q.89	<ul> <li>septic tank to the water treatment system?</li> <li> ★ 1. Vertical sump pump ★ 2. Screw pump → 3. Submersible pump ★ 4. Progressive cavity pump </li> <li>Which of the following includes the cost of hire charges for the vehicle for an 8-hour working period in a day with the cost of the driver?</li></ul>		
Ans Q.89 Ans	<ul> <li>septic tank to the water treatment system?</li> <li>1. Vertical sump pump</li> <li>2. Screw pump</li> <li>3. Submersible pump</li> <li>4. Progressive cavity pump</li> </ul> Which of the following includes the cost of hire charges for the vehicle for an 8-hour working period in a day with the cost of the driver? <ul> <li>1. Labour cost</li> </ul>		
Ans Q.89 Ans	<ul> <li>septic tank to the water treatment system?</li> <li>1. Vertical sump pump</li> <li>2. Screw pump</li> <li>3. Submersible pump</li> <li>4. Progressive cavity pump</li> </ul> Which of the following includes the cost of hire charges for the vehicle for an 8-hour working period in a day with the cost of the driver? <ul> <li>1. Labour cost</li> <li>2. Cost of owing</li> </ul>		
Ans Q.89 Ans	<ul> <li>septic tank to the water treatment system?</li> <li>1. Vertical sump pump</li> <li>2. Screw pump</li> <li>3. Submersible pump</li> <li>4. Progressive cavity pump</li> </ul> Which of the following includes the cost of hire charges for the vehicle for an 8-hour working period in a day with the cost of the driver? <ul> <li>1. Labour cost</li> <li>2. Cost of owing</li> <li>3. Loading of the vehicle</li> </ul>		
Ans Q.89 Ans	<pre>septic tank to the water treatment system?  X 1. Vertical sump pump  2. Screw pump  3. Submersible pump  X 4. Progressive cavity pump  Which of the following includes the cost of hire charges for the vehicle for an 8-hour working period in a day with the cost of the driver?  X 1. Labour cost  X 2. Cost of owing  X 3. Loading of the vehicle  X 4. Mscellaneous</pre>		
Ans Q.89 Ans Q.90	<ul> <li>septic tank to the water treatment system?</li> <li>1. Vertical sump pump</li> <li>2. Screw pump</li> <li>3. Submersible pump</li> <li>4. Progressive cavity pump</li> </ul> Which of the following includes the cost of hire charges for the vehicle for an 8-hour working period in a day with the cost of the driver? <ul> <li>1. Labour cost</li> <li>2. Cost of owing</li> <li>3. Loading of the vehicle</li> <li>4. Miscellaneous</li> </ul> As per IRC, when designing pedestrian and traffic signals using approximate method for a two-phase system, the minimum initial period with pedestrian signal should NOT be less than:		
Ans Q.89 Ans Q.90 Ans	<ul> <li>septic tank to the water treatment system?</li> <li>1. Vertical sump pump</li> <li>2. Screw pump</li> <li>3. Submersible pump</li> <li>4. Progressive cavity pump</li> </ul> Which of the following includes the cost of hire charges for the vehicle for an 8-hour working period in a day with the cost of the driver? <ul> <li>1. Labour cost</li> <li>2. Cost of owing</li> <li>3. Loading of the vehicle</li> <li>4. Miscellaneous</li> </ul> As per IRC, when designing pedestrian and traffic signals using approximate method for a two-phase system, the minimum initial period with pedestrian signal should NOT be less than: <ul> <li>1. 9 seconds</li> </ul>		
Ans Q.89 Ans Q.90 Ans	<ul> <li>septic tank to the water treatment system?</li> <li>1. Vertical sump pump</li> <li>2. Screw pump</li> <li>3. Submersible pump</li> <li>4. Progressive cavity pump</li> </ul> Which of the following includes the cost of hire charges for the vehicle for an 8-hour working period in a day with the cost of the driver? <ul> <li>1. Labour cost</li> <li>2. Cost of owing</li> <li>3. Loading of the vehicle</li> <li>4. Mscellaneous</li> </ul> As per IRC, when designing pedestrian and traffic signals using approximate method for a two-phase system, the minimum initial period with pedestrian signal should NOT be less than: <ul> <li>1. 9 seconds</li> <li>2. 7 seconds</li> <li>2. 7 seconds</li> </ul>		
Ans Q.89 Ans Q.90 Ans	<ul> <li>septic tank to the water treatment system?</li> <li>1. Vertical sump pump</li> <li>2. Screw pump</li> <li>3. Submersible pump</li> <li>4. Progressive cavity pump</li> <li>Which of the following includes the cost of hire charges for the vehicle for an 8-hour working period in a day with the cost of the driver?</li> <li>1. Labour cost</li> <li>2. Cost of owing</li> <li>3. Loading of the vehicle</li> <li>4. Miscellaneous</li> </ul> As per IRC, when designing pedestrian and traffic signals using approximate method for a two-phase system, the minimum initial period with pedestrian signal should NOT be less than: <ul> <li>1. 9 seconds</li> <li>2. 7 seconds</li> <li>3. 6 seconds</li> </ul>		
Ans Q.89 Ans Q.90 Ans	<ul> <li>septic tank to the water treatment system?</li> <li>1. Vertical sump pump</li> <li>2. Screw pump</li> <li>3. Submersible pump</li> <li>4. Progressive cavity pump</li> <li>Which of the following includes the cost of hire charges for the vehicle for an 8-hour working period in a day with the cost of the driver?</li> <li>1. Labour cost</li> <li>2. Cost of owing</li> <li>3. Loading of the vehicle</li> <li>4. Miscellaneous</li> </ul> As per IRC, when designing pedestrian and traffic signals using approximate method for a two-phase system, the minimum initial period with pedestrian signal should NOT be less than: <ul> <li>1. 9 seconds</li> <li>2. 7 seconds</li> <li>3. 6 seconds</li> <li>4. 4 seconds</li> </ul>		
Ans Q.89 Ans Q.90 Ans	<pre>septic tank to the water treatment system?     1. Vertical sump pump     2. Screw pump     3. Submersible pump     4. Progressive cavity pump     4. Progressive cavity pump     Vhich of the following includes the cost of hire charges for the vehicle for an 8-hour working     period in a day with the cost of the driver?     1. Labour cost     2. Cost of owing     3. Loading of the vehicle     4. Miscellaneous As per IRC, when designing pedestrian and traffic signals using approximate method for a two- phase system, the minimum initial period with pedestrian signal should NOT be less than:</pre>		
Ans Q.89 Ans Q.90 Ans	<ul> <li>septic tank to the water treatment system?</li> <li>1. Vertical sump pump</li> <li>2. Screw pump</li> <li>3. Submersible pump</li> <li>4. Progressive cavity pump</li> <li>Which of the following includes the cost of hire charges for the vehicle for an 8-hour working period in a day with the cost of the driver?</li> <li>1. Labour cost</li> <li>2. Cost of owing</li> <li>3. Loading of the vehicle</li> <li>4. Miscellaneous</li> </ul> As per IRC, when designing pedestrian and traffic signals using approximate method for a two-phase system, the minimum initial period with pedestrian signal should NOT be less than: <ul> <li>1. 9 seconds</li> <li>2. 7 seconds</li> <li>3. 6 seconds</li> <li>4. 4 seconds</li> </ul> Select the option that is appropriate regarding the following two statements labelled Assertion and Reason. Assertion: Check dams of low height are constructed across the tributaries of rivers at different stages to arrest the sediments in the catchment area.		
Ans Q.89 Ans Q.90 Ans Q.91	<ul> <li>septic tank to the water treatment system?</li> <li>X 1. Vertical sump pump</li> <li>S 2. Screw pump</li> <li>Submersible pump</li> <li>A. Progressive cavity pump</li> <li>Y 4. Progressive cavity pump</li> <li>Which of the following includes the cost of hire charges for the vehicle for an 8-hour working period in a day with the cost of the driver?</li> <li>Y 1. Labour cost</li> <li>2. Cost of owing</li> <li>X 3. Loading of the vehicle</li> <li>X 4. Miscellaneous</li> </ul> As per IRC, when designing pedestrian and traffic signals using approximate method for a two-phase system, the minimum initial period with pedestrian signal should NOT be less than: <ul> <li>X 1. 9 seconds</li> <li>X 3. 6 seconds</li> <li>X 4. 4 seconds</li> </ul> Select the option that is appropriate regarding the following two statements labelled Assertion and Reason. Assention: Check dams of low height are constructed across the tributaries of rivers at different stages to arres the sectionents in the catchment area. Reason: Check dams serve the purpose of detention reservoirs and keep all the sectiments in suspension. I Assertion is true but Reason is false.		
Ans Q.89 Ans Q.90 Ans Q.91	septic tank to the water treatment system?		
Ans Q.89 Ans Q.90 Ans Q.91	<ul> <li>septic tank to the water treatment system?</li> <li>1. Vertical sump pump</li> <li>2. Screw pump</li> <li>3. Submersible pump</li> <li>4. Progressive cavitypump</li> </ul> Which of the following includes the cost of hire charges for the vehicle for an 8-hour working period in a day with the cost of the driver? <ul> <li>1. Labour cost</li> <li>2. Cost of owing</li> <li>3. Loading of the vehicle</li> <li>4. Miscellaneous</li> </ul> As per IRC, when designing pedestrian and traffic signals using approximate method for a two-phase system, the minimum initial period with pedestrian signal should NOT be less than: <ul> <li>1. 9 seconds</li> <li>3. 6 seconds</li> <li>4. 4 seconds</li> <li>4. 4 seconds</li> <li>Select the option that is appropriate regarding the following two statements labelled Assertion and Reason. Reservices the sediments in the catherment and transmitter and keep all the sediments in suspension. <ul> <li>1. Assertion is true but Reason is false.</li> <li>2. Both Assertion and Reason are false.</li> <li>3. Both Assertion and Reason are fulse.</li> </ul></li></ul>		
Ans Q.89 Ans Q.90 Ans Q.91 Ans	<ul> <li>septic tank to the water treatment system?</li> <li>1. Vertical sump pump</li> <li>2. Screw pump</li> <li>3. Submersible pump</li> <li>4. Progressive cavity pump</li> <li>Which of the following includes the cost of hire charges for the vehicle for an 8-hour working period in a day with the cost of the driver?</li> <li>1. Labour cost</li> <li>2. Cost of owing</li> <li>3. Loading of the vehicle</li> <li>4. Miscellaneous</li> </ul> As per IRC, when designing pedestrian and traffic signals using approximate method for a two-phase system, the minimum initial period with pedestrian signal should NOT be less than: <ul> <li>1. 9 seconds</li> <li>3. 6 seconds</li> <li>3. 6 seconds</li> <li>4. 4 seconds</li> </ul> Select the option that is appropriate regarding the following two statements labelled Assertion and Reason. Assertion: Check dams of low height are constructed across the tributaries of rivers at different stages to arres the sediments in the catherment area. Reason: Check dams serve the purpose of detention reservoirs and keep all the sediments in suspension.          1. Assertion and Reason are false. <ul> <li>2. Both Assertion and Reason are fue but Reason is the correct explanation of Assertion.</li> <li>4. Both Assertion and Reason are true but Reason is not the correct explanation of Assertion.</li> </ul>		





۵۵۵	The moment of inertia of a body is a measurement of
Ans	<ul> <li>★ 1, its resistance against translation</li> </ul>
	× 2. its resistance against linear deformation
	★ 3. its resistance against shear
	4. its resistance against rotation
2.93	Municipal solid waste is also known as:
Ans	X 1. street sweepings
	X 2. municipal rubbish
	3. refuse
	X 4. leachate
Q.94	Which of the following methods explains the process of underwater concreting? (i) Pumping technique (ii) Hydro valve method (iii) Toggle bags method (iv) Bagged concrete method
Ans	1. (i), (ii), (iii), and (iv)
	🗙 2. Only (i), (ii), (iii)
	🗙 3. Both (i) and (ii)
	🗙 4. Only(i)
Q.95	A capillary tube of diameter 4 mm is dipped into a liquid of specific gravity 0.6. The liquid rises in the tube by 20 mm, making an angle of contact of 0° with the tube. Determine the surface tension of the liquid in contact with air and the glass tube.
Ans	✓ 1.0.12 N/m
	× 2. 0.08 N/m
	🗙 3. 0.5 N/m
	🗙 4. 1 N/m
Q.96	Calculate the most economic area of a rectangular channel section with width 'B' and depth 'y'.
Ans	Х 1. Ву
	× 2.3) <sup>2</sup>
	3.2V <sup>2</sup>
Q.97	The relative error in a closed traverse survey with perimeter of 500 m is 1 in 2000. If the closing error lies in the fourth quadrant (Positive - Y and Negative - X), then the errors in latitude and departure, closer to two decimal point, will be, respectively.
Ans	$\sim$ <sup>1</sup> 0.2 m and - 0.15 m
	$\times^{2}$ $\sqrt{0\cdot 2}$ m and $-\sqrt{0\cdot 15}$ m
	3.
	× 0.2 m and 0.15 m
	4
	$\times$ $\sqrt{0\cdot 2}$ m and $\sqrt{0\cdot 15}$ m
2.98 Δnc	For zenith angles greater than 90°, the telescope of the total station will be
A115	$\sim$ 2 pointing downwards
	X 3. pointing upwards





Q.99	is the best suited method of irrigation for arid conditions in hot and windy areas so achieve optimum usage of irrigation water.
Ans	X 1. Furrow irrigation method
	X 2. Border strip method
	✓ 3. Drip irrigation method
	x 4. Sprinkler irrigation method
Q.100	During rainy season, if the rainfall is sufficient during the crop period, less quantity of irrigation water shall be required and therefore, the duty of the irrigation canal will be
Ans	🗙 1. the same
	2. more
	imes 3. No relation between the duty and the rainfall
	X 4. less

