

# CII – iPATE 2.0 (2021)

Computer Based PAN India Examination

Category: GRADUATE ENGINEER (ENTRY LEVEL)

Engineering Discipline: CIVIL ENGINEERING

Questions & Answers

(Reviewed, Revised & Published dtd. 26.11.2021)

## Paper Structure

Question Nos.	Sections & Topics		Marks
1 to 20	Section I : Cognitive Abilities	<ul style="list-style-type: none"><li>Quantitative Aptitude</li><li>Analytical Reasoning</li><li>Data Interpretation</li><li>English Communication</li></ul>	20
21 to 40	Section II : Professional Abilities	<ul style="list-style-type: none"><li>Project Management</li><li>Health, Safety &amp; Risk Management</li><li>Environmental Laws</li><li>Social Responsibility &amp; Ethics</li><li>Finance &amp; Accounts</li><li>Legal, Contracts &amp; Arbitration</li></ul>	20
41 to 50	Section III (A) : Technical Abilities	Physics & Chemistry (10+2 level)	10
51 to 100	Section III (B) : Technical Abilities	Engineering Discipline	50
<b>TOTAL</b>			<b>100</b>

NOTE:

- Exam Duration: 3 Hours
- Total 100 no. of Questions of 1 Mark each with Negative Marking of ½ Mark for every wrong answer
- Questions (Section wise) and respective Answer Options shuffled at Candidates' terminal

Question No. 1	Discriminant of a second-degree polynomial with integer coefficients cannot be:			
Answer Options	A)	B)	C)	D)
	43	33	68	25
Right Answer	A			

Question No. 2	How many subsets A of {1, 2, 3, 4, 5, 6, 7, 8, 9, and 10} have the property that no two elements of A sum to 11?			
Answer Options	A)	B)	C)	D)
	1024	512	343	243
Right Answer	C			

Question No. 3	Viru and Aarti started a car journey from Chandigarh to Delhi, which are 288 km apart. Viru took 12 hours more than Aarti to complete the journey. Had Viru travelled at double his actual speed, he would have taken 4 hours less than Aarti to complete the journey. Find the respective speeds (in km/hr) at which Viru and Aarti travelled.			
Answer Options	A)	B)	C)	D)
	14.4 and 9	14.5 and 28.5	9 and 14.4	15 and 20
Right Answer	C			

Question No. 4	The height of a trapezoid whose diagonals are mutually perpendicular is equal to 4. Find the area of the trapezoid if it is known that the length of one of its diagonals is equal to 5.			
Answer Options	A)	B)	C)	D)
	50/3 square units	100/3 square units	16/6 square units	None of these
Right Answer	A			

Question No. 5	A polyhedron has faces that are all either triangles or squares. No two square-faces share an edge, and no two triangular-faces share an edge. What is the ratio of triangular-faces to the number of square-faces?			
Answer Options	A)	B)	C)	D)
	03:04	04:03	01:02	04:05
Right Answer	B			

Question No. 6	Your mind likes reading and it actually has a number of important health affects you can't get in any other way. Reading gives you a unique "pause button" for comprehension. Typically, when you read, you have more time to think. When you watch a film or listen to a tape, you don't press that pause button. Reading requires a great deal of concentration, which calls your intelligence to action. The author of this passage would agree that:			
Answer Options	A)	B)	C)	D)
	Reading is a good way to relax, since it doesn't require that much thinking.	Watching a movie has the same effect on the intelligence as reading.	Reading develops your intelligence.	Both A and C
Right Answer	C			

Question No. 7	Read the following information carefully and answer the question given below. P stands 5m west of R. T stands 5m south of Q. T stands 6m east of U. V stands 2m west of Q. A stands 2m south of U. V stands 3m north of R. If G stands 7m east of P, then in which direction does G stands with respect to T?			
Answer Options	A)	B)	C)	D)
	West	East	South	North
Right Answer	D			

Question No. 8	The French Revolution began in 1789 and ended in the late 1790s with the ascent of Napoleon Bonaparte. During this period, French citizens razed and redesigned their country's political landscape, uprooting centuries-old institutions such as absolute monarchy and the feudal system. Like the American Revolution before it, the French Revolution was influenced by Enlightenment ideals, particularly the concepts of popular sovereignty and inalienable rights. From this passage it can be concluded that:			
Answer Options	A)	B)	C)	D)
	The French revolution began before the Russian Revolution.	In the French Revolution their monarch was killed.	The American Revolution happened before the French Revolution.	Napoleon initiated the French Revolution.
Right Answer	C			

Question No. 9	A, B, C, D and E are sitting on a bench. A is sitting next to B, C is sitting next to D, D is not sitting with E who is on the left end of the bench. C is on the second position from the right. A is to the right of B and E. A and C are sitting together. In which position A is sitting?			
Answer Options	A)	B)	C)	D)
	Between B and C	Between E and D	Between B and D	Between C and E
Right Answer	A			

Question No. 10	A, P, R, X, S and Z are sitting in a row. S and Z are in the centre. A and P are at the ends. R is sitting to the left of A. Who is to the right of P?			
Answer Options	A)	B)	C)	D)
	X	Z	S	A
Right Answer	A			

Question No. 11	In the following question choose the word which is the exact OPPOSITE of the given word. STRINGENT			
Answer Options	A)	B)	C)	D)
	Magnanimous	Vehement	General	Lenient
Right Answer	D			

Question No. 12	Some proverbs/idioms are given below together with their meanings. Choose the correct meaning of proverb/idiom. To catch a tartar			
Answer Options	A)	B)	C)	D)
	To trap wanted criminal with great difficulty	To catch a dangerous person	To meet with disaster	To deal with a person who is more than one's match
Right Answer	D			

Question No. 13	Which of the phrases A), B), C) and D) given below each sentence should replace the word/phrase printed in bold in the sentence to make it grammatically correct? If the sentence is correct as it is given and no correction is required, mark (E) as the answer. <b>Since the girl did not want to be disturbed while studying, she left the phone off hooks.</b>			
Answer Options	A)	B)	C)	D)
	of hook	for the hook	off hooking	off the hook
Right Answer	D			

Question No. 14	In the following question choose the word which is the exact OPPOSITE of the given word. FICKLE			
Answer Options	A)	B)	C)	D)
	Courageous	Sincere	Steadfast	Humble
Right Answer	C			

Question No. 15	<p>In question below, the passage consists of six sentences. The first and sixth sentence are given in the correct places. The middle four sentences in each have been removed and jumbled up. These are labelled as P, Q, R and S. Find out the proper order for the four sentences.</p> <p><b>S1:</b> In the middle of one side of the square sits the Chairman of the committee, the most important person in the room.</p> <p><b>P:</b> For a committee is not just a mere collection of individuals.</p> <p><b>Q:</b> On him rests much of the responsibility for the success or failure of the committee.</p> <p><b>R:</b> While this is happening, we have an opportunity to get the 'feel' of this committee.</p> <p><b>S:</b> As the meeting opens, he runs briskly through a number of formalities.</p> <p><b>S6:</b> From the moment its members meet, it begins to have a sort nebulous life of its own.</p> <p>The Proper sequence should be:</p>			
Answer Options	A)	B)	C)	D)
	RSQP	QSRP	SQPR	PQRS
Right Answer	B			

Question  
No. 16

**Question nos. 16 to 20:**

Following bar chart represents the number of people in 6 different villages (A, B, C, D, E and F) and the tabular column depicts the ratio of literate to illiterate people and percentage of male living in those villages.



If 40% of the female from village B is literate, then what is the percentage of male, who is illiterate from village B?

Answer Options	A)	B)	C)	D)
	38%	35%	37%	cannot be determined
Right Answer	C			

Question  
No. 17

What is the percentage of literate people in all the six villages together?

Answer Options	A)	B)	C)	D)
	55%	53%	51%	cannot be determined
Right Answer	B			

Question  
No. 18

What is the ratio between numbers of illiterate people from villages B, C & D to number of females from villages A, E & F?

Answer Options	A)	B)	C)	D)
	320:527	527:330	330:527	527:320
Right Answer	C			

Question  
No. 19

If 3% of female from village D & 5% of female from village E are literate then what is the total number of literate males from D & F together?

Answer Options	A)	B)	C)	D)
	1823	1723	1623	cannot be determined
Right Answer	D			

Question  
No. 20

The number of females from villages A & C is how much percentage more or less than number of females from villages D & F?

Answer Options	A)	B)	C)	D)
	25.72%	25.76%	24.76%	24.72%
Right Answer	C			

Question No. 21	A project plan results in a project schedule seems to be too long. If the project network diagram cannot change but extra personnel resources is available, what is the best thing to do?			
Answer Options	A)	B)	C)	D)
	Fast track the project	Level the resources	Crash the project	Any other option
Right Answer	C			

Question No. 22	Which of the following is not Project Management's goal			
Answer Options	A)	B)	C)	D)
	Keeping overall cost within the budget	Delivering the project/goods to the client at agreed time	Maintaining a satisfactory and well-functioning development	Avoiding customer/client complaints
Right Answer	D			

Question No. 23	You have recently been named as Project Manager of a new project under a Contract. The Project Management Unit (PMU) gave you the contract signed by the Customer and a Statement of Work and asked you to go on with initiation. Which document should you develop next?			
Answer Options	A)	B)	C)	D)
	Project Manager Plan	Milestone Schedule	Project Charter	Scope Statement
Right Answer	C			

Question No. 24	The analysis tool for a quality problem that involves selecting the problem, identifying major categories of potential causes and associating likely specific causes is			
Answer Options	A)	B)	C)	D)
	Pareto chart	Fishbone diagram	Scatter diagram	Check list
Right Answer	B			

Question No. 25	The Occupational Safety & Health Administration requires employers to have Hearing Conservation Plans if the average 8-hour noise exposure is more than			
Answer Options	A)	B)	C)	D)
	1000 dB	500 dB	105 dB	85 dB
Right Answer	D			

Question No. 26	Ammonia becomes an immediate danger to your life and health when it is present at the following level or greater			
Answer Options	A)	B)	C)	D)
	10 ppm	30 ppm	300 ppm	1000 ppm
Right Answer	C			

Question No. 27	Exposure to high levels of noise can lead to which of the following:			
Answer Options	A)	B)	C)	D)
	High blood pressure	Gastrointestinal problems	Chronic fatigue	All of the above
Right Answer	D			

Question No. 28	Which type of fire extinguishing system is most commonly used to protect areas containing valuable equipment such as data processing rooms, telecommunications switches, and process control rooms?			
Answer Options	A)	B)	C)	D)
	Fixed extinguishing systems	Portable extinguishing systems	Hose extinguishing systems	It's up to the discretion the employer
Right Answer	A			

Question No. 29	If you need to wear glasses with your eye or face protection, which of the following options is acceptable			
Answer Options	A)	B)	C)	D)
	Wearing prescription spectacles with side shields and protective lenses that meet safety requirements and also correct your vision	Wearing goggles that fit comfortably over your glasses	Wearing goggles that have corrective lenses mounted behind the protective lenses	All of the above
Right Answer	D			

Question No. 30	Under which Section of Environment Pollution Act, the CPCB can issue the directions directly to industries			
Answer Options	A)	B)	C)	D)
	Section 16	Section 18	Section 11	Section 5
Right Answer	D			

Question No. 31	Which of these divisions of Pollution Control Implementation deals with Air Polluting Industries			
Answer Options	A)	B)	C)	D)
	PCI - I	PCI - II	PCI - III	SSI & Law
Right Answer	B			

Question No. 32	The Kyoto Protocol is an international treaty which extends the United Nations Framework Convention on Climate Change (UNFCCC). In which year the convention held?			
Answer Options	A)	B)	C)	D)
	1987	1995	1992	1997
Right Answer	C			

Question No. 33	What is the harm from manipulation of Earth's Ozone layer?			
Answer Options	A)	B)	C)	D)
	The average temperature of Earth's surface will increase gradually	The Oxygen content of the atmosphere will decrease	Increased amount of Ultraviolet radiation will reach earth's surface	Sea level will rise as the polar ice caps will gradually melt
Right Answer	C			

Question No. 34	Which of the following would not represent the cash outflows for the business?			
Answer Options	A)	B)	C)	D)
	Purchase of building for cash	The sale of land for cash	Retirement of long-term debt	The payment of cash for dividends
Right Answer	B			

Question No. 35	Which one of the following tangible fixed assets would not normally be depreciated?			
Answer Options	A)	B)	C)	D)
	Buildings	Machinery	Land	Equipment
Right Answer	C			

Question No. 36	A Profit is earned if?			
Answer Options	A)	B)	C)	D)
	Assets exceed Expenditure	Income exceeds Expenditure	Cash Inflow exceeds Cash Outflow	Income exceeds Liabilities
Right Answer	B			

Question No. 37	Which of the following budgets is normally prepared first?			
Answer Options	A)	B)	C)	D)
	Cash budget	Sales budget	Merchandise purchases budget	Selling expense budget
Right Answer	B			

Question No. 38	What is the correct sequence in the formation of a contract?			
Answer Options	A)	B)	C)	D)
	Offer, acceptance, agreement, consideration.	Agreement, consideration, offer, acceptance.	Offer, agreement, consideration, acceptance.	Offer, acceptance, consideration, agreement.
Right Answer	D			



Question No. 39	Which of the following answers is most accurate description of arbitration?			
Answer Options	A)	B)	C)	D)
	An informal meeting between the parties involving a discussion to sort out the dispute	An adjudicative process where the parties submit their disputes for a binding decision to an impartial tribunal	A meeting between the parties where an impartial third party gives decision	An impartial umpire selected to decide after hearing the dispute from parties
Right Answer	B			

Question No. 40	Which of the following answers is not type of alternative dispute resolution?			
Answer Options	A)	B)	C)	D)
	Arbitration	Court proceedings	Conciliation	Mediation
Right Answer	B			

Question No. 41	The equation of state for n moles of an ideal gas is $PV = nRT$ , where R is the universal gas constant and all other quantities have their usual meanings. What are the dimensions of R?			
Answer Options	A)	B)	C)	D)
	$M^0L^{-2}K^{-1}mol^{-1}$	$M^0L^2T^{-2}K^{-1}mol^{-1}$	$ML^2T^{-2}K^{-1}mol^{-1}$	$ML^{-2}T^{-2}K^{-1}mol^{-1}$
Right Answer	C			

Question No. 42	A cylindrical tube open at both ends has fundamental frequency n. If one of the ends is closed, the fundamental frequency will become			
Answer Options	A)	B)	C)	D)
	$n/2$	$2n$	$4n$	$n$
Right Answer	A			

Question No. 43	The speed of sound in a gas is V and the root mean square speed of the gas molecules is $V_{rms}$ . If the ratio of the specific heats of the gas is 1.5, then the ratio of V: $V_{rms}$ will be			
Answer Options	A)	B)	C)	D)
	1:2	1:3	$1:\sqrt{2}$	$1:\sqrt{3}$
Right Answer	C			

Question No. 44	Which of the following phenomena gives evidence of the molecular structure of the matter?			
Answer Options	A)	B)	C)	D)
	Brownian motion	Diffusion	Evaporation	All of these
Right Answer	D			

Question No. 45	Starting with the same initial conditions, an ideal gas expands from volume $V_1$ to $V_2$ in three different ways. The work done by the gas is $W_1$ if the process is purely isobaric, $W_2$ if the process is purely isochoric and $W_3$ if the process is purely adiabatic. Then			
Answer Options	A) $W_1 > W_2 > W_3$	B) $W_2 > W_1 > W_3$	C) $W_1 > W_3 > W_2$	D) $W_3 > W_1 > W_2$
Right Answer	C			

Question No. 46	A vessel contains a mixture of 1 mole of oxygen and two moles of nitrogen at 300K. The ratio of the rotational kinetic energy per $O_2$ molecule to that per $N_2$ molecule is			
Answer Options	A) 1:1	B) 1:2	C) 2:1	D) Depends on the moment of inertia of the two molecules
Right Answer	A			

Question No. 47	In a test experiment on a model aeroplane in a wind tunnel, the flow speeds on the lower and upper surfaces of the wing are $v$ and $\sqrt{2}v$ respectively. If the density of air is $\rho$ and the surface area of the wing is $A$ , the dynamic lift on the wing is given by			
Answer Options	A) $(\rho v^2 A)/\sqrt{2}$	B) $(\rho v^2 A)/2$	C) $2\rho v^2 A$	D) $\sqrt{2}\rho v^2 A$
Right Answer	B			

Question No. 48	A boy whirls a stone in a horizontal circle 2m above the ground by means of a string 1.25m long. The string breaks and the stone flies off horizontally, striking the ground 10m away. What is the magnitude of the centripetal acceleration during circular motion? (Take $g=10\text{m/s}^2$ )			
Answer Options	A) $400\text{m/s}^2$	B) $300\text{m/s}^2$	C) $200\text{m/s}^2$	D) $100\text{m/s}^2$
Right Answer	C			

Question No. 49	Radium (with Atomic no. = 87, Mass No. = 221) undergoes radioactive decay with a half-life of 4 days. The probability that a Ra nucleus will disintegrate in 8 days is			
Answer Options	A) 1/4	B) 3/4	C) 1/2	D) 1
Right Answer	B			

Question No. 50	A tunnel is dug along the diameter of the earth. An object is held in the tunnel at a distance $x$ from the centre of the earth. The magnitude of the gravitational force on the object is proportional to			
Answer Options	A) $1/x$	B) $1/x^2$	C) $x$	D) $x^2$
Right Answer	C			

Question No. 51	Water content of a soil sample is the difference of the weight of the given sample at the given temperature and the weight determined after drying it for 24 hours at temperature ranging from			
Answer Options	A) 80 - 90°C	B) 90 - 95°C	C) 95 - 100°C	D) 100 - 105°C
Right Answer	D			

Question No. 52	Main steel bars in columns should not be less than			
Answer Options	A) 12mm	B) 10mm	C) 16mm	D) 8mm
Right Answer	A			

Question No. 53	Plaster of Paris is obtained by calcining			
Answer Options	A) Bauxite	B) Kankar	C) Gypsum	D) Limestone
Right Answer	C			

Question No. 54	Quick setting cement is produced by adding			
Answer Options	A) Less amount of gypsum in a very fine powdered form	B) More amount of gypsum in a very fine powdered form	C) Aluminium sulphate in a very fine powdered form	D) Pozzolana in a very fine powdered form
Right Answer	A			

Question No. 55	The quantity of water retained by the sub-soil against gravity, is known as			
Answer Options	A) Yield	B) Porosity	C) Specific Yield	D) Specific Retention
Right Answer	D			

Question No. 56	The structure constructed to allow drainage water to flow under pressure through an inverted syphon below a canal, is called			
Answer Options	A) Syphon	B) Super passage	C) Syphon aqueduct	D) Super aqueduct
Right Answer	C			

Question No. 57	For the design of major hydraulic structures on the canals, the method generally preferred to, is based on			
Answer Options	A) Khosla's method of independent variables	B) The relaxation method	C) Electrical analogy method	D) Bligh's theory
Right Answer	A			

Question No. 58	When a uniformly distributed load, shorter than the span of the girder, moves from left to right, then the conditions for maximum bending moment at a section is that			
Answer Options	A)	B)	C)	D)
	The head of the load reaches the section	The tail of the load reaches the section	The load position should be such that the section divides it equally on both sides	The load position should be such that the section divides the load in the same ratio as it divides the span
Right Answer	D			

Question No. 59	How much is domestic water consumption out of the total water requirements per capita per day?			
Answer Options	A)	B)	C)	D)
	40%	50%	20%	30%
Right Answer	B			

Question No. 60	Uniformity coefficient of sand for slow sand filters shall be			
Answer Options	A)	B)	C)	D)
	1 to 3	3 to 5	5 to 7	7 to 10
Right Answer	B			

Question No. 61	Aeration of water is done to remove			
Answer Options	A)	B)	C)	D)
	Odour	Colour	Hardness	Turbidity
Right Answer	A			

Question No. 62	Most of the bacteria in sewage are			
Answer Options	A)	B)	C)	D)
	Anaerobic	Parasitic	Saprophytic	Pathogenic
Right Answer	C			

Question No. 63	How is the base level bending moment of a cantilever retaining wall expressed as a function of its height H?			
Answer Options	A)	B)	C)	D)
	H	H <sup>2</sup>	H <sup>3</sup>	H <sup>4</sup>
Right Answer	C			

Question No. 64	In roof trusses bracings should be provided at top chord level in the			
Answer Options	A)	B)	C)	D)
	End panels using flats	End panels using angles	Last but one panel using flats	Last but one end panel using angles
Right Answer	B			

Question No. 65	The range of economical spacing of trusses varies from			
Answer Options	A)	B)	C)	D)
	L/3 to L/5	L/4 to 2L/5	L/2 to L/3	2 L/3 to 2 L/5
Right Answer	A			

Question No. 66	The group index of a soil subgrade is 7. The subgrade soil is rated as			
Answer Options	A)	B)	C)	D)
	Very poor	Poor	Good	Fair
Right Answer	B			

Question No. 67	If the pressure carried by a CBR specimen at 2.5 mm penetration is 3.5 N/mm <sup>2</sup> , the CBR of the soil is			
Answer Options	A)	B)	C)	D)
	10%	35%	50%	70%
Right Answer	C			

Question No. 68	Disadvantage of railway concrete sleeper is			
Answer Options	A)	B)	C)	D)
	Their heavy weight	No scrap value	Heavy damage during derailment	All of these
Right Answer	D			

Question No. 69	The protective barrier constructed to enclose harbours is known as			
Answer Options	A)	B)	C)	D)
	Breakwater	Wharves	Jetty	Quay
Right Answer	A			

Question No. 70	As per IS:456, Grade of concrete M25 means			
Answer Options	A)	B)	C)	D)
	Compressive strength of 200 mm concrete cube is 25 N per sq mm at 7 days	Tensile strength of concrete cube at 28 days is 25 N per sq mm	Characteristic Compressive strength of 150 mm cube at 21 days is 25 N per sq mm	Characteristic Compressive strength of 150 mm concrete cube (As per IS:456) at 28 days is 25 N per sq mm
Right Answer	D			

Question No. 71	In a RCC retaining wall, shear key is provided for the purpose of			
Answer Options	A) resisting against overturning of the wall.	B) decreasing the base pressure.	C) resisting against sliding tendency of the wall by developing active soil pressure.	D) resisting against sliding tendency of the wall by developing passive soil pressure.
Right Answer	D			

Question No. 72	The defect over road carriageway due to progressive separation of fine aggregate particles and binder from the bituminous surface is known as			
Answer Options	A) fretting	B) bleeding	C) slippage	D) ravelling
Right Answer	D			

Question No. 73	Total load in MT comes from an IRC Class 70R wheeled vehicle is			
Answer Options	A) 70	B) 100	C) 40	D) 60
Right Answer	B			

Question No. 74	For a river bridge, if the cost of superstructure for one span = A and the cost of substructure for the same span = B, then for an economic span the correct relation between A & B should be,			
Answer Options	A) $A = B$	B) $A > B$	C) $A < B$	D) $A = 2B$
Right Answer	A			

Question No. 75	The formation of corrugation or ripples across the bituminous paved surface is due to			
Answer Options	A) heavy channelized traffic and overloading of vehicles	B) lack of stability in the mix	C) lack of lateral support from shoulder	D) inadequate pavement thickness
Right Answer	B			

Question No. 76	The formation of alligator cracks across the bituminous paved surface is due to			
Answer Options	A) inadequate pavement thickness	B) unusual thrust of wheels in a specific direction	C) excessive moisture in sub grade	D) lack of lateral support from shoulder
Right Answer	A			

Question No. 77	For a highway in plain terrain having initial (two way) traffic volume of 1000 commercial vehicles per day the indicative Vehicle Damage Factor (VDF) values as per IRC:37-2018 is			
Answer Options	A)	B)	C)	D)
	3.2	3.5	3.9	2.9
Right Answer	C			

Question No. 78	The difference in level between HFL and the lowest point of superstructure of a river bridge is known as			
Answer Options	A)	B)	C)	D)
	vertical clearance	freeboard	clear height	none of these
Right Answer	A			

Question No. 79	The recommended design period in years of Major District Roads as per IRC:37-2018 is			
Answer Options	A)	B)	C)	D)
	20	10	5	15
Right Answer	C			

Question No. 80	The minimum bitumen content as percentage by weight within bitumen mastic blocks without course aggregates is			
Answer Options	A)	B)	C)	D)
	14	12	18	20
Right Answer	A			

Question No. 81	The minimum vertical clearance required for a Bridge over river having discharge 1000 m <sup>3</sup> /sec, is			
Answer Options	A)	B)	C)	D)
	600 mm	900 mm	1200 mm	1500 mm
Right Answer	C			

Question No. 82	The difference in level between the HFL after allowing for afflux, if any, and the formation level of road embankment on the approach is known as			
Answer Options	A)	B)	C)	D)
	vertical clearance	freeboard	clear height	none of these
Right Answer	B			

Question No. 83	Which method of test of concrete is not included to non-destructive test?			
Answer Options	A)	B)	C)	D)
	Rebound Hammer Test	Ultrasonic Pulse Velocity Test	Profometer Test	Core Test
Right Answer	D			

Question No. 84	The recommended minimum grade of concrete and maximum water cement ratio of Reinforced Concrete under severe environmental exposure as per IS 456(2000) are respectively,			
Answer Options	A)	B)	C)	D)
	M- 30 & 0.45	M- 35 & 0.40	M- 25 & 0.5	M- 20 & 0.55
Right Answer	A			

Question No. 85	For acceptance of a concrete member represented by core test the average equivalent cube strength of cores and the individual strength of core should at least have a percentage of strength for the specified grade of concrete for the corresponding edge respectively,			
Answer Options	A)	B)	C)	D)
	85% & 75%	80% & 70%	90% & 80%	100% & 95%
Right Answer	A			

Question No. 86	The compressive strength of 100 mm cubes of the grout for Post tensioned Pre-stressed Girder at 28 days should not be less than,			
Answer Options	A)	B)	C)	D)
	30 MPa	27 MPa	22 MPa	18 MPa
Right Answer	B			

Question No. 87	Maximum permissible stresses in high -tensile steel of post-tensioned pre-stressed girder at the time of initial tensioning, as a percentage of characterised tensile strength of tendons is			
Answer Options	A)	B)	C)	D)
	90%	85%	80%	75%
Right Answer	C			

Question No. 88	The ventilation of public halls, by means of air coolers and exhaust fans, is known as			
Answer Options	A)	B)	C)	D)
	the plenum system	the A.C. system	the vacuum system	none of these
Right Answer	A			

Question No. 89	The pump which permits the sewage solids to pass out with liquid sewage, without clogging the pump, is a			
Answer Options	A)	B)	C)	D)
	Air pressure pump	Reciprocating pump	Centrifugal pump	none of these
Right Answer	C			

Question No. 90	A pump capacity of 0.015 cumec required to lift 15 meter including losses should have a horse power of (assuming pump efficiency to be 60%)			
Answer Options	A)	B)	C)	D)
	2	3	4	5
Right Answer	D			



Question No. 91	Standard 5 days BOD at 20°C, when compared to ultimate BOD, is about			
Answer Options	A)	B)	C)	D)
	58%	68%	78%	88%
Right Answer	B			

Question No. 92	If a 2% solution of sewage sample is incubated for 5 days at 20°C, and the depletion of oxygen is 5 mg/l, then the BOD of the sewage would be,			
Answer Options	A)	B)	C)	D)
	100 mg/l	150 mg/l	200 mg/l	250 mg/l
Right Answer	D			

Question No. 93	Any wastewater can be considered to be quite amenable to biological treatment if its 5days BOD /COD ratio is more than			
Answer Options	A)	B)	C)	D)
	0.63	0.68	0.75	0.82
Right Answer	A			

Question No. 94	The strength of industrial wastewaters for estimating the treatment required at the municipal sewage treatment plant can be assessed realistically by its			
Answer Options	A)	B)	C)	D)
	Population Equivalent	Relative stability	TOC	COD
Right Answer	A			

Question No. 95	The relative stability of a sewage sample, whose D.O. equals to the total Oxygen required to satisfy its BOD, is			
Answer Options	A)	B)	C)	D)
	zero	1%	10 %	100%
Right Answer	D			

Question No. 96	The graph between the amount of organic matter left in sewage, and time elapsed in days, is			
Answer Options	A)	B)	C)	D)
	Linear	exponential	parallel to time axis	Cubic parabola
Right Answer	B			

Question No. 97	The raw sewage can be directly discharged without any specific treatment, in a water body, if the dilution factor available is			
Answer Options	A)	B)	C)	D)
	more than 1000	more than 500	between 300 to 500	between 150 to 300
Right Answer	B			

Question No. 98	The type of bacteria which flourish in the presence of free dissolved oxygen in wastewater and consume organic matter by oxidising it, are known as			
Answer Options	A)	B)	C)	D)
	Aerobic bacteria	Anearobic bacteria	Pathogenic bacteria	Non-pathogenic bacteria
Right Answer	A			

Question No. 99	For a double lacing, riveted at ends and at intersections what will be the effective length of lacing bar, if the length between inner end rivets on lacing bar is L?			
Answer Options	A)	B)	C)	D)
	0.9L	0.8L	0.7L	0.6L
Right Answer	C			

Question No. 100	The minimum vertical clearance required for a Bridge over river having discharge 1000 m <sup>3</sup> /sec, is			
Answer Options	A)	B)	C)	D)
	600 mm	900 mm	1200 mm	1500 mm
Right Answer	C			