

# CII – iPATE 2.0 (2021)

Computer Based PAN India Examination

Category: GRADUATE ENGINEER (ENTRY LEVEL)

Engineering Discipline: MINING 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			

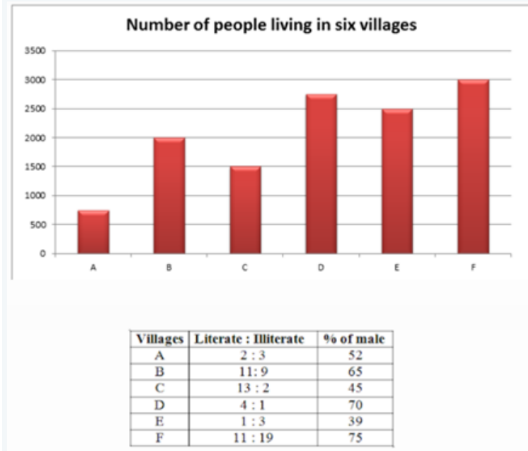
Question No. 14	In the following question choose the word which is the exact OPPOSITE of the given word. FICKLE			
Answer Options	A)	B)	C)	D)
	Courageous	Sincere	Steadfast	Humble
Right Answer	C			

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)
	$M^0L^2T^{-2}K^{-1}mol^{-1}$	$M^0L^2T^{-2}K^{-1}mol^{-1}$	$ML^2T^{-2}K^{-1}mol^{-1}$	$ML^{-2}T^{-2}K^{-1}mol^{-1}$
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	Wonga Willi Method, Knife Edge Method, Wide Stall Method are collectively referred as			
Answer Options	A)	B)	C)	D)
	Winning methods	Drifting Methods	Sinking Methods	None of Above
Right Answer	A			

Question No. 52	For every mine employing more than _____ persons on any day of the preceding calendar year there shall be provided a suitable First Aid Room.			
Answer Options	A)	B)	C)	D)
	100	150	200	250
Right Answer	B			

Question No. 53	The Jankwice method of mining is applicable for			
Answer Options	A)	B)	C)	D)
	Thin Seam	Steeply inclined thick seam	thick seam up to 6m inclined at 300-350	Coal gasification
Right Answer	C			

Question No. 54	In long wall method of mining roof falls are more common if the face is			
Answer Options	A)	B)	C)	D)
	Parallel to the main cleat	perpendicular to the main cleat	At 30° to the main cleat	None of the Above.
Right Answer	A			

Question No. 55	What is the maximum permissible sagging for forest land in mm per meter by the Ministry of Environment & Forest?			
Answer Options	A)	B)	C)	D)
	1mm/m	2mm/m	3mm/m	4mm/m
Right Answer	C			

Question No. 56	15 cubic Meter dragline is deployed in an overburden bench of an open cast mine. It works for 30 days at the rate of 6 hours per shift working for three shifts in a day. The cycle time, bucket fill factor and operation efficiency of the dragline are 50 sec, 0.8 and 75% respectively. The total volume of over burden in M <sup>3</sup> per month handled will be			
Answer Options	A)	B)	C)	D)
	349920	456423	652343	987563
Right Answer	A			

Question No. 57	The primary goal of the disaster preparedness plan is			
Answer Options	A)	B)	C)	D)
	to protect the persons employed below ground	to protect valuable resources	to keep communication lines open	to protect Environmental Conditions
Right Answer	A			

Question No. 58	A 30 M thick seam dipping at 1 in 10 panel to produce 0.4 million tonne of coal per year method may be proposed as			
Answer Options	A)	B)	C)	D)
	B/P with LHD face	Blasting Gallery face	Soutirage face	Long wall Face
Right Answer	A			

Question No. 59	Shovel dumper combination is decided by			
Answer Options	A)	B)	C)	D)
	Production from the benches	Height of the Bench	Both Height and production	None of Above.
Right Answer	C			

Question No. 60	Drill Size for a bench of height is given by			
Answer Options	A)	B)	C)	D)
	H/10	H/20	H/40	H/50
Right Answer	D			

Question No. 61	Soutirage method of mining is a			
Answer Options	A)	B)	C)	D)
	Caving Method	partial extraction method	Stowing Method	None of Above
Right Answer	A			

Question No. 62	The test made on cables by the manufacturers for all finished cable lengths to demonstrate the integrity of the cable is called			
Answer Options	A)	B)	C)	D)
	Routine Test	Type test	Acceptance	None of Above
Right Answer	A			

Question No. 63	Suitable Gradient for Hydraulic mining is			
Answer Options	A)	B)	C)	D)
	steeper than 1 in 4	steeper than 1 in 10	steeper than 1 in 15	steeper than 1 in 35
Right Answer	A			

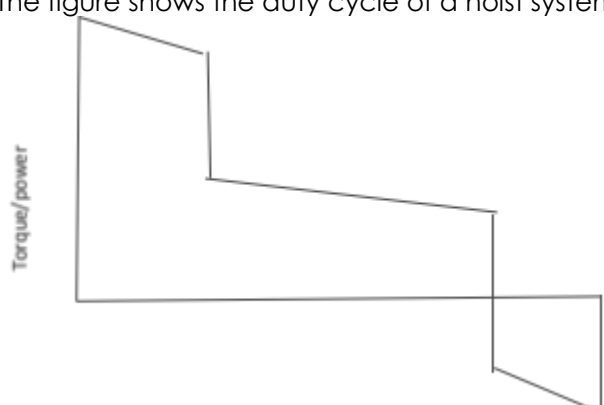
Question No. 64	Muck loading is Done By			
Answer Options	A)	B)	C)	D)
	Mechanized method	Manual Method	Both	None of Above
Right Answer	A			

Question No. 65	A mine fan delivers 50 m <sup>3</sup> /sec of air at a fan drift w.g. of 10 mm. it is proposed to increase the quantity to 60 m <sup>3</sup> /sec. The required w.g shall be			
Answer Options	A)	B)	C)	D)
	12 mm	13.6mm	14.4mm	20.2mm
Right Answer	C			

Question No. 66	For Hydraulic transportation of solids in pipeline, the ratio of the size of solids to the pipe diameters should not be more than			
Answer Options	A)	B)	C)	D)
	1:2	1:3	1:4	1:1
Right Answer	B			

Question No. 67	Compressibility of sand fill by hydraulic stowing is			
Answer Options	A)	B)	C)	D)
	10-15%	15-20%	20-30%	none of above
Right Answer	C			

Question No. 68	Match a) Room And Pillar      I) Artificially supported b) shrinkage stopping    II) Heavily supported c) Sublevel Stoppage    III) Naturally supported d) Square set stopping   IV) un supported			
Answer Options	A)	B)	C)	D)
	a(III) b(I) c(IV) d(II)	a(II) b(IV) c(I) d(III)	a(III) b(II) c(I) d(IV)	a(III) b(II) c(IV) d(I)
Right Answer	A			

Question No. 69	The figure shows the duty cycle of a hoist system. The System is referred to be a 			
Answer Options	A)	B)	C)	D)
	Cylindrical drum with tail rope	Bi-cylinder conical dram	Ground mounted friction sheave	cylindrical drum without tail rope
Right Answer	D			

Question No. 70	If the swell factor of ore in a shrinkage stope is 1.4, the output from the stope in percentage of broken ore is			
Answer Options	A)	B)	C)	D)
	29	100	40	0
Right Answer	C			

Question No. 71	The size of an incline is usually _____ m width x _____ m height if it is for endless or a belt conveyor with type haulage.			
Answer Options	A)	B)	C)	D)
	4,2,2	3,8,3	4,2,5	4,5,2
Right Answer	A			

Question No. 72	Which one is not classified in Breast Stope method?			
Answer Options	A)	B)	C)	D)
	Harring bone method	Footwall cross cut and box method	Scattered pill method	none of above
Right Answer	D			

Question No. 73	The most commonly used switch gear in Underground coal mines is			
Answer Options	A)	B)	C)	D)
	COB	ABC	MOCB	VCB
Right Answer	B			

Question No. 74	GRP/FRP rock bolts are			
Answer Options	A)	B)	C)	D)
	heavy duty bolts	used for roof support in difficult conditions	used for side support in continuous miner or long wall panels	all of the above
Right Answer	C			

Question No. 75	Permanent lining is to be provided in a sinking shaft up to			
Answer Options	A)	B)	C)	D)
	6 meters from bottom of the shaft	20 meters from bottom of the shaft if iron and steel rings with substantial lagging are provided below the permanent lining	Both of the Above	None of the Above
Right Answer	C			

Question No. 76	Open Stope method is used for ore of			
Answer Options	A)	B)	C)	D)
	High grade	low grade	weak	strong
Right Answer	B			

Question No. 77	In which line of extraction the pillar or stook is under excessive pressure and is liable to crush?			
Answer Options	A)	B)	C)	D)
	Diagonal	Step Diagonal	Parallel to strike	Arrow head
Right Answer	D			

Question No. 78	The Sudden release of elastic strain energy stored in pillars results violent burst of coal pillars is called			
Answer Options	A)	B)	C)	D)
	air Blast	Bumps	Rock Burst	Main Fall
Right Answer	B			

Question No. 79	Which type of cloth are used for stowing purpose?			
Answer Options	A)	B)	C)	D)
	cotton cloth	Syphon cloth	Caliber Cloth	Hessian Cloth
Right Answer	D			

Question No. 80	Coal Gasification is a			
Answer Options	A)	B)	C)	D)
	Endothermic reaction	Exothermic reaction	Cracking	Both A&B
Right Answer	D			

Question No. 81	Diamond Drilling is applicable up to max depth of .....m?			
Answer Options	A)	B)	C)	D)
	2000	3000	5000	7000
Right Answer	B			

Question No. 82	The safety device which is provided in sinking shaft in case of over winding is			
Answer Options	A)	B)	C)	D)
	spider	Detaching hook	kibble	rider
Right Answer	A			

Question No. 83	Maximum roof exposure for caving is _____			
Answer Options	A)	B)	C)	D)
	30 m <sup>2</sup> to 50 m <sup>2</sup>	60 m <sup>2</sup> to 90 m <sup>2</sup>	90 m <sup>2</sup> to 100 m <sup>2</sup>	100 m <sup>2</sup> to 120 m <sup>2</sup>
Right Answer	C			

Question No. 84	Wagon Drill is used for the drill holes having depth of?			
Answer Options	A)	B)	C)	D)
	Up to 3m	3-15m	15-25m	Above 25m
Right Answer	C			

Question No. 85	The sale value of coal ore from an open pit mine is Rs. 6500 per tonne. The cost of mining, excluding stripping cost is 2450 per tonne. If the cost of stripping is Rs.1150 per M <sup>3</sup> , the breakeven stripping ratio in M <sup>3</sup> /tonne is			
Answer Options	A)	B)	C)	D)
	2.18	3.52	3.65	4.25
Right Answer	B			

Question No. 86	The depth of advance bore hole at the center of the face of exploratory gallery shall not be less than			
Answer Options	A)	B)	C)	D)
	1.5m	3m	9m	12m
Right Answer	B			

Question No. 87	What should be the maximum quantity of air (in percentage) to be drawn by an auxiliary fan of total quantity of air passing through the gallery or road way where fan is installed?			
Answer Options	A)	B)	C)	D)
	25%	40%	50%	60%
Right Answer	C			

Question No. 88	<p>Given below is the data set from the result of a pressure quantity survey of a mine,</p> <p>I) Length of the mine roadways -300 m</p> <p>II) Pressure drop -200pa</p> <p>III) Quantity of air flowing -120m<sup>3</sup>/min</p> <p>Calculate, if an airway of equal resistance is added in parallel, what will be the quantity of air flow after the addition of airway</p>			
Answer Options	A)	B)	C)	D)
	120m <sup>3</sup> /min	160m <sup>3</sup> /min	140m <sup>3</sup> /min	180m <sup>3</sup> /min
Right Answer	B			

Question No. 89	A roadway is 3m height 4.2m width and 300 m long, calculate resistance of road ways (Assume K=0.0098)			
Answer Options	A)	B)	C)	D)
	0.021Ns <sup>2</sup> m <sup>-8</sup>	0.010Ns <sup>2</sup> m <sup>-8</sup>	0.031Ns <sup>2</sup> m <sup>-8</sup>	0.041Ns <sup>2</sup> m <sup>-8</sup>
Right Answer	A			



Question No. 90	An air way requires 200 Pa pressure difference to circulate 2000 M <sup>3</sup> /min of air through it. Calculate the air power			
Answer Options	A)	B)	C)	D)
	10hp	20hp	30hp	40hp
Right Answer	A			

Question No. 91	The Moody diagram represents resistance coefficient in terms of			
Answer Options	A)	B)	C)	D)
	Reynolds number and asperity	viscosity and aspect ratio	Surface tension and viscosity	Reynolds number and Surface tension
Right Answer	A			

Question No. 92	The type of fire extinguisher that must not be used in case of electric substation fire located in an underground metal mine is			
Answer Options	A)	B)	C)	D)
	Multi-purpose Dry chemical extinguisher	CO <sub>2</sub> snow extinguisher	Dry Chemical powder extinguisher	Foam extinguisher
Right Answer	D			

Question No. 93	A mine worker inhales normal air, whereas, the exhaled year contains 16.65% O <sub>2</sub> and 3.83% CO <sub>2</sub> . The respiratory quotient of breathing for worker is			
Answer Options	A)	B)	C)	D)
	0.23	0.88	0.99	1.13
Right Answer	B			

Question No. 94	For Indian coal mines the maximum allowable concentration of respirable dust containing 7.5% free silica in Mg/m <sup>3</sup> is			
Answer Options	A)	B)	C)	D)
	2.0	2.2	2.5	2.7
Right Answer	A			

Question No. 95	Which one of the following instrument is used to measure the cooling power of the air?			
Answer Options	A)	B)	C)	D)
	anemometer	velometer	manometer	katathermometer
Right Answer	D			

Question No. 96	Which of the following do not have identical dimensions?			
Answer Options	A)	B)	C)	D)
	Momentum and impulse	Torque and energy	Torque and work	Moment of a force and angular momentum
Right Answer	D			

Question No. 97	Forging means			
Answer Options	A)	B)	C)	D)
	Heating and striking	Heating	Melting	Hammering
Right Answer	A			

Question No. 98	The blade of multistage axial flow fan is of			
Answer Options	A)	B)	C)	D)
	Aerofoil Cross-section	Trapezoidal Cross-section	Rectangular Cross-section	Square Cross-section
Right Answer	A			

Question No. 99	Retarder is put into operation when dumper is moving in			
Answer Options	A)	B)	C)	D)
	uphill road	downhill road	undulated road	level road
Right Answer	C			

Question No. 100	Find out the water Dam thickness if the head of water is 30m and width of 4.2m and crushing strength is 12 kg/cm <sup>2</sup>			
Answer Options	A)	B)	C)	D)
	15cm	12cm	13cm	11cm
Right Answer	A			