

# CII – iPATE 1.0 (2020)

Computer Based PAN India Examination

Category: GRADUATE ENGINEER (ENTRY LEVEL)

Engineering Discipline: METALLURGICAL ENGINEERING

Questions & Answers

(Reviewed, Revised & Published dtd. 20.01.2021)

## 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	Neha goes for a walk between 4 am and 5 am. After coming back, she found that the hour hand and the minute hand of her watch had exchanged their positions. How much time(approx.) did she spend on her walk?			
Answer Options	A)	B)	C)	D)
	55 min	55:38 min	55:54 min	55:46 min
Right Answer	B			

Question No. 2	4 red, 6 green and 5 white flowers are in a bag. 3 flowers are taken together. What is the probability of getting 1 white and 2 green flowers?			
Answer Options	A)	B)	C)	D)
	1/5	15/91	3/91	3/11
Right Answer	B			

Question No. 3	Tony, Monu and James completed a work together in 36 days and received a total payment of Rs. 54000. Tony took half of the total money, Monu took one third and James took remaining. In how many days, Tony and James would have finished the work if Monu was not working?			
Answer Options	A)	B)	C)	D)
	72 days	54 days	96 days	64 days
Right Answer	B			

Question No. 4	A shopkeeper purchased 15 kg of variety A rice at Rs. X per kg and 10 kg of variety B rice at Rs. (X + 5) per kg. The shopkeeper sold the whole quantity of variety A rice at 10% profit and that of variety B rice at 20% profit. The total selling price of variety A rice was Rs. 30 more than that of variety B rice. Had the two varieties been mixed and sold at an overall profit of 20%, what would have been the selling price (per kg)?			
Answer Options	A)	B)	C)	D)
	Rs. 26.40	Rs. 23.20	Rs. 24.20	Rs. 25.00
Right Answer	A			

Question No. 5	A club has 256 members of whom 144 can play football, 123 can play tennis, and 132 can play cricket. Moreover, 58 members can play both football and tennis, 25 can play both cricket and tennis, while 63 can play both football and cricket. If every member can play at least one game, then the number of members who can play only tennis is			
Answer Options	A)	B)	C)	D)
	32	43	38	45
Right Answer	B			

Question No. 6	Fill up the following series: 5, 25, 7, _____, 9, 19			
Answer Options	A)	B)	C)	D)
	23	22	25	32
Right Answer	B			

Question No. 7	<p>The question is followed by three statements I, II, and III. Read the question and the statements carefully and choose your answer according to which set of the statement(s) is/are sufficient to answer the question.</p> <p>What is the area of the rectangle?</p> <p>I. The ratio of length to breadth of the rectangle is 35 : 12.          II. The perimeter of the rectangle is 188 cm.          III. The length of diagonal of the rectangle is 74 cm</p>			
Answer Options	A)	B)	C)	D)
	I and II only	I and III only	(I and II) or (II and III)	Any two of the three
Right Answer	D			

Question No. 8	<p>The question below consists of a question and three statements numbered I, II and III given below it. You have to decide whether the data provided in the statements are sufficient to answer the question. Read all the statements and give answer:</p> <p>What is the sum of the age of Ram and Mohan?</p> <p>Statement I : The age of Ram is 6 years more than the age of Mohan.          Statement II : 40% of the age of Mohan is equal to 30% of the age of Ram.          Statement III : The ratio between half of the age of Ram and one third of the age of Mohan is 2 : 1.</p>			
Answer Options	A)	B)	C)	D)
	Either statement III alone or statements I and II together are sufficient.	Only statement III is sufficient	Only statement I and II are sufficient	Only statement I, II, and III are sufficient
Right Answer	C			

Question No. 9	<p>Mohan is the Son of Arun's Father's sister. Prakash is the son of Reva, who is the mother of Vikas and Grandmother of Arun. Pranab is the father of Neela and the grandfather of Mohan. Reva is the wife of Pranab. How is the wife of Vikas related to the neela?</p>			
Answer Options	A)	B)	C)	D)
	Sister	Sister - In - Law	Niece	None of The Above
Right Answer	B			

Question No. 10	<p>In the following question, there is a certain relationship between two given words on one side of:: and one word is given on another side of:: while another word is to be found from the given alternatives having the same relationship with this word as the words of the given pair bear. Choose the correct alternative.</p> <p>_____ : trail :: grain : grail</p>			
Answer Options	A)	B)	C)	D)
	train	path	wheat	holy
Right Answer	A			

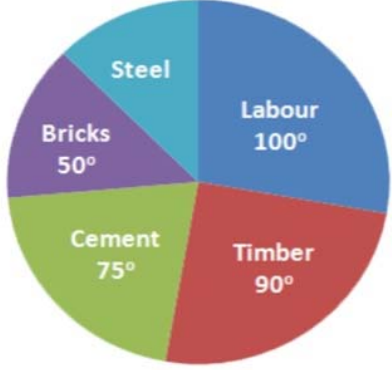
Question No. 11	<b>Given below are four jumbled sentences. Out of the given options pick the one that gives their correct order.</b>			
	A: Only natural dyes are used in Kalamkari and it involves several steps. B: There are two distinctive styles of Kalamkari in India. C: They are the Sri kalahasti style and the Machlipatnam style. D: Kalamkari is a type of hand-painted or block-printed cotton textile, produced in the Indian States of Andhra Pradesh and Telangana.			
Answer Options	A) CBDA	B) DABC	C) ACBD	D) DCBA
Right Answer	B			

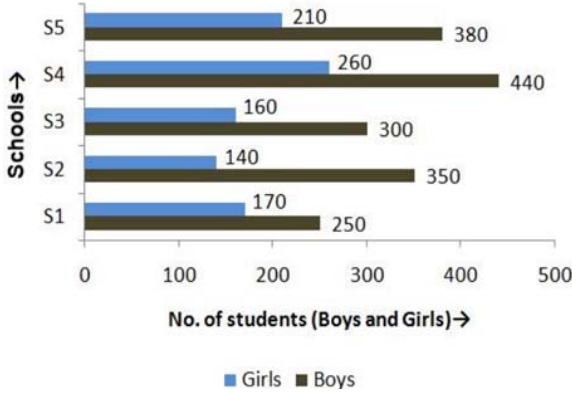
Question No. 12	What is the antonym of MOROSE			
Answer Options	A) overawed	B) agitated	C) cherubic	D) cheerful
Right Answer	D			

Question No. 13	What is the synonym of ERRONEOUS			
Answer Options	A) Enormous	B) Wrong	C) Erased	D) Weak
Right Answer	B			

Question No. 14	A frustrated old man, Bandi thakur was never tired of (1) _____ the exploits of his ancestors, with a little (2) _____ he would lapse into a reminiscent mood, push back the loosely tied turban from his close-cropped grizzled hair and start a familiar story, improvising (3) _____ details which, to the mirth of his audience, always kept changing with every recounting.			
Answer Options	A) (1) criticizing, (2) prompting, (3) sincere	B) (1) extolling, (2) advising, (3) rational	C) (1) invoking, (2) arguing, (3) fanciful	D) (1) extolling, (2) prompting, (3) fanciful
Right Answer	D			

Question No. 15	Even my goalies and the policemen, who have arrested me or (1) _____ me as a prisoner from place to place have been kind to me, and much of the (2) _____ of conflict and the sting of goal-life has been (3) _____ because of this human touch.			
Answer Options	A) (1) safeguarded, (2) kindness, (3) egged on	B) (1) escorted, (2) affinity, (3) toned down	C) (1) abandoned, (2) bitterness, (3) pumped up	D) (1) escorted, (2) bitterness, (3) toned down
Right Answer	D			

<p>Question No. 16</p>	<p>The pie chart shows the total expense of Rs 450000 to construct a house.</p> <p>The cost of steel is</p> 			
<p>Answer Options</p>	<p>A) Rs 55000</p>	<p>B) Rs 56250</p>	<p>C) Rs 60000</p>	<p>D) Rs 62500</p>
<p>Right Answer</p>	<p>B</p>			

<p>Question No. 17</p>	<p>The following bar graph shows the number of boys and girls of class X of 5 different schools.</p> <p>Find the difference between the number of boys and girls of schools S2 and S3 together</p> 			
<p>Answer Options</p>	<p>A) 300</p>	<p>B) 350</p>	<p>C) 400</p>	<p>D) 450</p>
<p>Right Answer</p>	<p>B</p>			

Question No. 18	Study the tables carefully and answer the question that follow: Number of candidates (in lakhs) appearing in an entrance examination from six different states and the ratio of male candidates and female candidates in the same																																	
	The number of male candidates from Andhra Pradesh and Haryana together is what percent of the total number of female candidates from Bihar?																																	
	<table border="1"> <thead> <tr> <th rowspan="2">State</th> <th rowspan="2">Number of candidates</th> <th colspan="2">Ratio</th> </tr> <tr> <th>Male</th> <th>Female</th> </tr> </thead> <tbody> <tr> <td>Andhra Pradesh</td> <td>1.85</td> <td>3</td> <td>2</td> </tr> <tr> <td>Assam</td> <td>2.73</td> <td>7</td> <td>5</td> </tr> <tr> <td>Telangana</td> <td>1.25</td> <td>7</td> <td>3</td> </tr> <tr> <td>Odisha</td> <td>3.14</td> <td>5</td> <td>3</td> </tr> <tr> <td>Haryana</td> <td>1.08</td> <td>4</td> <td>5</td> </tr> <tr> <td>Bihar</td> <td>2.27</td> <td>1</td> <td>3</td> </tr> </tbody> </table>				State	Number of candidates	Ratio		Male	Female	Andhra Pradesh	1.85	3	2	Assam	2.73	7	5	Telangana	1.25	7	3	Odisha	3.14	5	3	Haryana	1.08	4	5	Bihar	2.27	1	3
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Odisha	3.14	5	3																															
Haryana	1.08	4	5																															
Bihar	2.27	1	3																															
Answer Options	A) 98.41%	B) 48.45%	C) 95.49%	D) 93.39%																														
Right Answer	D																																	
NOTE	Question was displayed incorrectly at candidates' terminals. Hence '1' mark has been given to all candidates, who attempted or not.																																	

Question No. 19	Read the following information carefully and answer the given question.			
	i. Rajesh, Raju and Pijush are intelligent. ii. Rajesh, Shib and Hari are hard-working. iii. Shib, Pijush and Hari are honest. iv. Rajesh, Raju and Hari are ambitious.			
	Which of the following person is neither honest nor hard-working but is ambitious?			
Answer Options	A) Shib	B) Pijush	C) Raju	D) Hari
Right Answer	C			


Question No. 20	Read the following information carefully and answer the following question.			
	'A + B' means 'A is the father of B'; 'A - B' means 'A is the wife of B'; 'A x B' means 'A is the brother of B'; 'A ÷ B' means 'A is the daughter of B'.			
	If $P \div R + S + Q$ , which of the following is true?			
Answer Options	A) P is the daughter of Q	B) Q is the aunt of P	C) P is the aunt of Q	D) P is the mother of Q
Right Answer	C			

Question No. 21	A management point in a Work Breakdown Structure (WBS) used to consolidate and process work package data and forward the result to the project management is called _____			
Answer Options	A)	B)	C)	D)
	Control account	Chart of the account	Control limit	Account limit
Right Answer	A			
NOTE	Question was displayed incorrectly at candidates' terminals. Hence '1' mark has been given to all candidates, who attempted or not.			

Question No. 22	Various activities of a project are shown on a Bar Chart by _____			
Answer Options	A)	B)	C)	D)
	Vertical line	Horizontal line	Dots	Crosses
Right Answer	B			

Question No. 23	The difference between the time avail to do a job and time required to do the job is known as _____			
Answer Options	A)	B)	C)	D)
	Event	Float	Duration	Constraints
Right Answer	B			

Question No. 24	Gantt Chart is commonly used for _____			
Answer Options	A)	B)	C)	D)
	Routing	Scheduling	Follow up	Inspection and quality control
Right Answer	B			

Question No. 25	The following symbol is used when something in your workplace is 			
Answer Options	A)	B)	C)	D)
	Chemical Weapon	Biohazard	Toxic Substance	Radiation Danger
Right Answer	B			

Question No. 26	What is the leading cause of death on construction sites?			
Answer Options	A)	B)	C)	D)
	Struck by object	Falls	Caught-in or -between	Electrocutions Hazardous Materials
Right Answer	B			

Question No. 27	What violations are most commonly cited by OSHA?			
Answer Options	A)	B)	C)	D)
	Hazard communications	Scaffolding	Fall protection	Respiratory protection
Right Answer	C			

Question No. 28	_____ is best suited to extinguishing oil or flammable liquid fire			
Answer Options	A)	B)	C)	D)
	Soda acid	Vaporizing liquid	Foam	Dry chemical
Right Answer	C			

Question No. 29	Out of the 37 countries, which country still not ratified the second commitment known as the Doha amendment to the Kyoto Protocol?			
Answer Options	A)	B)	C)	D)
	USA	Canada	Norway	Ukraine
Right Answer	A			

Question No. 30	The Ministry also serves as the nodal agency in the country for the which of these organisations?			
Answer Options	A)	B)	C)	D)
	United Nations Environment Programme (UNEP)	South Asia Co-operative Environment Programme (SACEP)	International Centre for Integrated Mountain Development (ICIMOD)	All of the above
Right Answer	D			

Question No. 31	There are many benefits to implementing an EMS. These include a potential for			
Answer Options	A)	B)	C)	D)
	Reduction in waste production	The avoidance in use, and costly disposal of, other hazardous or potentially polluting materials	A planned approach to compliance with regulations and the consequential reduced risk of prosecutions and fines.	All of the above
Right Answer	D			



Question No. 32	Which of the following does not contribute to the development of a manager's standard of ethics?			
Answer Options	A)	B)	C)	D)
	competitor behaviours	society's norms and values	individual life experiences	environmental situations
Right Answer	A			

Question No. 33	Which is the approach to corporate planning?			
Answer Options	A)	B)	C)	D)
	Customers and workers satisfaction	Planning skills	Optimising	All of the above
Right Answer	D			

Question No. 34	Which one of the following is not principle business ethics?			
Answer Options	A)	B)	C)	D)
	Principle of universality	Principle of humanity	Principle of autonomy	Principle of dissatisfaction
Right Answer	D			

Question No. 35	Which of the following is a definition for variable costs?			
Answer Options	A)	B)	C)	D)
	Costs that remain the same whatever the level of output	Costs that contain a fixed and variable element	Costs that vary directly with the number of units produced	Costs that will remain fixed as output increases until the activity reaches a level where the costs have to increase sharply
Right Answer	C			

Question No. 36	Which of the following is a definition of break-even point?			
Answer Options	A)	B)	C)	D)
	The difference between the selling price of a product and the variable costs incurred in producing that product	The fixed plus variable costs of the business	The situation where neither a profit nor a loss is made	The situation where a profit is made
Right Answer	C			

Question No. 37	Which of the following is not a benefit of budgeting?			
Answer Options	A)	B)	C)	D)
	It promotes study, research, and a focus on the future	It is a source of motivation	It will prevent net losses from occurring	It is a mean of coordinating business activities
Right Answer	C			

Question No. 38	What is the obligation of the peaceful settlement of dispute?			
Answer Options	A)	B)	C)	D)
	It is an obligation of result i.e. States are under a strict obligation to resolve the disputes at the earliest	It is an obligation of conduct i.e. States have an obligation to try to resolve the disputes via peaceful mean. That does not entail an obligation to resolve the dispute	It is an intention to act immediately as per norms of International Law and all States have a legal interest to safeguard its application in any dispute	It is an obligation which concerns solely International courts and tribunal.
Right Answer	B			

Question No. 39	What is the primary function of the Law of Tort?			
Answer Options	A)	B)	C)	D)
	Punishment of a wrong motivator	Clarification of the human rights of the parties	Compensating the claimant	Spreading of losses throughout the parties
Right Answer	C			

Question No. 40	FIDIC published a completely new suite of contracts in various coloured books which contain different conditions. What condition is mentioned in Red Book?			
Answer Options	A)	B)	C)	D)
	Conditions of contract for Construction project.	Conditions of contract for EPC/ Turnkey project.	Conditions of contract for Plant & Design.	Conditions of contract for DBO (Design, Build & Operate) project.
Right Answer	A			
NOTE	Question was displayed incorrectly at candidates' terminals. Hence '1' mark has been given to all candidates, who attempted or not.			

Question No. 41	The center of mass of the system consisting of Earth, the Sun, and the planet Mars is:			
Answer Options	A)	B)	C)	D)
	Closer to Earth than to either of the other bodies	Closer to the Sun than to either of the other bodies	Closer to Mars than to either of the other bodies	At the geometric center of the triangle formed by the three bodies
Right Answer	B			

Question No. 42	At the same instant that a 0.50-kg ball is dropped from 25m above Earth, a second ball, with a mass of 0.25 kg, is thrown straight upward from Earth's surface with an initial speed of 15m/s. They move along nearby lines and pass without colliding. At the end of 2 sec the magnitude of the acceleration of the center of mass of the two-ball system is:			
Answer Options	A)	B)	C)	D)
	0.25g	0.50g	0.75g	g
Right Answer	D			

Question No. 43	The rainbow seen after a rain shower is caused by:			
Answer Options	A)	B)	C)	D)
	diffraction	interference	refraction	polarization
Right Answer	C			

Question No. 44	When light travels from medium X to medium Y as shown:			
Answer Options	A)	B)	C)	D)
	both the speed and the frequency decrease	both the speed and the frequency increase	both the speed and the wavelength decrease	both the speed and the wavelength increase
Right Answer	C			
NOTE	Question was displayed incorrectly at candidates' terminals. Hence '1' mark has been given to all candidates, who attempted or not.			

Question No. 45	An object rests on a horizontal frictionless surface. A horizontal force of magnitude F is applied. This force produces an acceleration:			
Answer Options	A)	B)	C)	D)
	only if F is larger than the weight of the object	only while the object suddenly changes from rest to motion	always	only if the inertia of the object decreases
Right Answer	C			

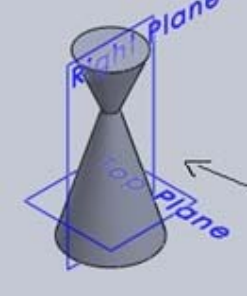

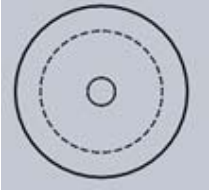
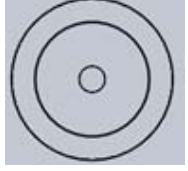
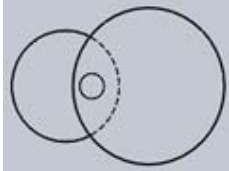
Question No. 46	Which statement is incorrect?			
Answer Options	A)	B)	C)	D)
	All the metals are good conductor of electricity.	All the metals are good conductor of heat	All the metals form positive ions	All the metals form acidic oxides
Right Answer	D			

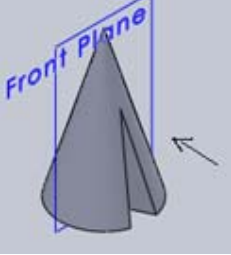
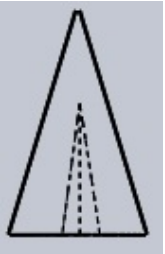
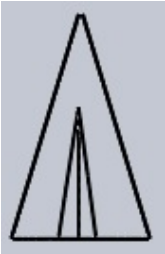
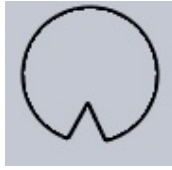
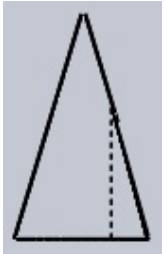
Question No. 47	Based on the first law of thermodynamics, which one of the following is correct?			
Answer Options	A)	B)	C)	D)
	For an isothermal process, $q = +w$	For an isochoric process, $\Delta U = -q$	For an adiabatic process, $\Delta U = -w$	For a cyclic process, $q = -w$
Right Answer	D			

Question No. 48	Among the electrolytes $\text{Na}_2\text{SO}_4$ , $\text{CaCl}_2$ , $\text{Al}_2(\text{SO}_4)_3$ and $\text{NH}_4\text{Cl}$ , the most effective coagulating agent for $\text{Sb}_2\text{S}_3$ sol is			
Answer Options	A)	B)	C)	D)
	$\text{Na}_2\text{SO}_4$	$\text{CaCl}_2$	$\text{Al}_2(\text{SO}_4)_3$	$\text{NH}_4\text{Cl}$
Right Answer	C			

Question No. 49	Of the following which one is classified as polyester polymer?			
Answer Options	A)	B)	C)	D)
	Nylon-66	Terylene	Backelite	Melamine
Right Answer	B			

Question No. 50	In order to increase the volume of a gas by 10%, the pressure of the gas should be			
Answer Options	A)	B)	C)	D)
	increased by 10%	increased by 1%	decreased by 10%	decreased by 1%
Right Answer	C			

<p>Question No. 51</p>	<p>Identify the top view for the below-given cone.</p> 			
<p>Answer Options</p>	<p>A)</p> 	<p>B)</p> 	<p>C)</p> 	<p>D)</p> 
<p>Right Answer</p>	<p>C</p>			

<p>Question No. 52</p>	<p>Identify the front view of the following cone.</p> 			
<p>Answer Options</p>	<p>A)</p> 	<p>B)</p> 	<p>C)</p> 	<p>D)</p> 
<p>Right Answer</p>	<p>B</p>			

Question No. 53	Curve of any shape can be drawn in perspective by enclosing it in a _____			
Answer Options	A)	B)	C)	D)
	rectangle	cube	cylinder	square
Right Answer	A			

Question No. 54	A prism and cone got intersected at 90 degrees the line of intersection will be _____ and parallel to axis of _____			
Answer Options	A)	B)	C)	D)
	straight line, prism	curve, prism	straight line, cone	curve, cone
Right Answer	B			

Question No. 55	The plane surfaces intersect in a _____ the line of intersection between two curved surfaces is _____ and between a plane surface and curved surfaces is a _____			
Answer Options	A)	B)	C)	D)
	straight line, curve, curve	straight line, straight line, curve	straight line, curve, straight line	curve, curve, curve
Right Answer	A			

Question No. 56	Which one of the following phases or mixture of phases can be found in a hypo-eutectoid steel at the room temperature?			
Answer Options	A)	B)	C)	D)
	Ferrite + austenite	Ferrite + bainite	Ferrite + pearlite	Martensite + bainite
Right Answer	C			

Question No. 57	Pig iron is produced by smelting of iron ore in _____			
Answer Options	A)	B)	C)	D)
	Electric arc furnace	Blast furnace	LD converter	Direct reduced iron plant
Right Answer	B			

Question No. 58	Which one of the following invariant reactions are observed in typical Fe-Fe <sub>3</sub> C phase diagram?			
Answer Options	A)	B)	C)	D)
	Eutectoid, Peritectic, Eutectic	Peritectic, monotectoid, eutectic	Eutectic, Peritectic	Peritectoid, Monotectoid
Right Answer	A			

Question No. 59	Low dissolved gaseous content in the steel can be achieved by the following operation			
Answer Options	A)	B)	C)	D)
	RH degasser	DH degasser	Vacuum arc remelting (VAR)	All of the above
Right Answer	D			

Question No. 60	Large deformation in hot rolling is possible as it is done above the			
Answer Options	A)	B)	C)	D)
	Non - Recrystallization temperature	Curie temperature	Eutectoid transformation temperature	Neel temperature
Right Answer	A			

Question No. 61	Which one of the following is NOT an ore of iron			
Answer Options	A)	B)	C)	D)
	Haematite	Magnetite	Siderite	Galena
Right Answer	D			

Question No. 62	In a blast furnace, hot air is blasted into the furnace in the following region			
Answer Options	A)	B)	C)	D)
	Bosh region	Tuyers	Top charging system	Slag tapping section
Right Answer	B			

Question No. 63	The crystal structure of ferrite is			
Answer Options	A)	B)	C)	D)
	Body centered cubic	Face centered cubic	Hexagonal close packed	Triclinic
Right Answer	A			

Question No. 64	The dependence of the grain size with strength in a material is expressed by			
Answer Options	A)	B)	C)	D)
	Pitsh-Petch relationship	Hall-Petch relationship	Kurdjumov-Sachs relationship	Nisiyama-Wassermann relationship
Right Answer	B			

Question No. 65	In a typical Fe-C steel eutectoid relationship is observed at			
Answer Options	A)	B)	C)	D)
	0.18% C	4.3% C	0.78% C	0.008% C
Right Answer	C			

Question No. 66	An eutectoid plain C steel is austenitized and then subjected to furnace cooling. Which of the following microstructure(s) would be observed in steel at room temperature?			
Answer Options	A)	B)	C)	D)
	Fully martensitic	Fully bainitic	Fully pearlitic	Bainite with martensite
Right Answer	C			

Question No. 67	In a basic oxygen furnace such as LD converter, which of the following can be removed			
Answer Options	A)	B)	C)	D)
	C can be removed in preference P and S	P can be removed in preference C and S	S can be removed in preference P and C	C and P can be removed in preference to S
Right Answer	D			

Question No. 68	In continuous casting of steel, the mould is vertically oscillated as the slab-casting is done. The reason is			
Answer Options	A)	B)	C)	D)
	Prevent slab skin sticking to the mould	Easy floatation of inclusions in steel	Good heat transfer between steel and the mould	Ensure good casting homogeneity
Right Answer	A			

Question No. 69	In hot rolling process of steel surface oxide formation is observed due to			
Answer Options	A)	B)	C)	D)
	High temperature of slab reheating and rolling	High amount of deformation in the steel	Hot rolled steel comes in contact to the cooling water	Friction between rolls and the strip
Right Answer	A			

Question No. 70	Annealing operation is required after the cold rolling operation but not after the hot rolling, due to			
Answer Options	A)	B)	C)	D)
	Hot deformation accumulates strain	Cold rolling accumulates strain	Because of slab reheating prior to hot rolling	Cold rolling requires surface to be free of oxides
Right Answer	B			



Question No. 71	Which of the following elements has the maximum effect on increasing no-recrystallization of austenite during hot rolling of steels?			
Answer Options	A)	B)	C)	D)
	Titanium	Niobium	Vanadium	Aluminium
Right Answer	B			

Question No. 72	Which of the following phases has the maximum effect on increasing the hardness of steel?			
Answer Options	A)	B)	C)	D)
	Martensite	Granular bainite	Acicular ferrite	Delta ferrite
Right Answer	A			

Question No. 73	Which of the following elements leads to secondary hardening effect during tempering of martensite in steels?			
Answer Options	A)	B)	C)	D)
	Nickel	Aluminium	Copper	Molybdenum
Right Answer	D			

Question No. 74	Which of the following heat treatment is done to generate fine pearlite in microstructure of eutectoid steels?			
Answer Options	A)	B)	C)	D)
	Quenching	Tempering	Patenting	Annealing
Right Answer	C			

Question No. 75	Which acid bath is used in pickling of hot rolled coils before cold rolling operation?			
Answer Options	A)	B)	C)	D)
	Nitric acid	Oxalic acid	Acetic acid	Hydrochloric acid
Right Answer	D			

Question No. 76	To have uniform wall thicken in any deep drawn component what should be R BAR VALUE			
Answer Options	A)	B)	C)	D)
	1	0.96	0.5	>1.4
Right Answer	D			

Question No. 77	What kind of indenter used for Brinell HARDNESS TEST			
Answer Options	A)	B)	C)	D)
	DIAMOND CONE	STEEL BALL	PEN DOT	LONG TUBE
Right Answer	B			

Question No. 78	The ability of materials to develop a characteristic behaviour under repeated loading known as			
Answer Options	A)	B)	C)	D)
	TOUGHNESS	RESILIENCE	HARDNESS	FATIGUE
Right Answer	A			

Question No. 79	The permanent mode of deformation of a material known as			
Answer Options	A)	B)	C)	D)
	ELASTICITY	PLASTICITY	TWINING	SLIP DISLOCATION
Right Answer	B			

Question No. 80	Why CaFe, CaSi are commonly used in steel making			
Answer Options	A)	B)	C)	D)
	to produce clean steel	to improve flowability	to remove impurities	none of the above
Right Answer	D			

Question No. 81	A STEEL fully normalised condition revealed 40 % pearlite how much c in the steel			
Answer Options	A)	B)	C)	D)
	0.008	0.005	0.0038	0.0032
Right Answer	D			

Question No. 82	Metallic structure of Cu is			
Answer Options	A)	B)	C)	D)
	BCC	FCC	HCP	TCP
Right Answer	B			

Question No. 83	Metal with hexagonal close packed structure is			
Answer Options	A)	B)	C)	D)
	Silver	Iron	Magnesium	Aluminium
Right Answer	C			

Question No. 84	Eutectic reaction for iron- carbon system occurs at			
Answer Options	A)	B)	C)	D)
	723	1147	910	1539
Right Answer	B			

Question No. 85	Cheap stainless steel utensils are often prone to crack at the edges why due to			
Answer Options	A)	B)	C)	D)
	High Ni, low Cr	High Cr, low Ni	Low ni, low Cr	None of these
Right Answer	B			

Question No. 86	Addition of which element gives stainless steels an austenitic structure.			
Answer Options	A)	B)	C)	D)
	Molybdenum	Carbon	Nikel	Vanadium
Right Answer	C			

Question No. 87	Which Stainless steels with high strength, but low corrosion resistance & heat treatable			
Answer Options	A)	B)	C)	D)
	Duplex STANLESS STEEL	MARTENSITIC SS	AUSTANITIC SS	FERRITIC SS
Right Answer	B			

Question No. 88	What is the microstructure of Hadfield's steel?			
Answer Options	A)	B)	C)	D)
	MARTENSITIC	BENITIC	AUSTENETIC	FERRO PEARLITIC
Right Answer	C			

Question No. 89	Sintering is performed at what temperature			
Answer Options	A)	B)	C)	D)
	Above melting point	Room temp.	Cryogenic temp.	Just below melting point
Right Answer	D			

Question No. 90	Hardness readings are taken every _____ after quenching in Jominy end-quench test.			
Answer Options	A)	B)	C)	D)
	0.01 mm	0.1 mm	1.6 mm	2.5 mm
Right Answer	C			

Question No. 91	The cooling rate must be _____ the critical cooling rate for hardening of steel by quenching.			
Answer Options	A)	B)	C)	D)
	Higher than	Lower than	Equal to	Half of
Right Answer	A			

Question No. 92	What is the maximum amount of manganese in carbon steels?			
Answer Options	A)	B)	C)	D)
	1.65%	1.50%	0.60%	0.40%
Right Answer	A			

Question No. 93	The hardening process of Portland cement is known as			
Answer Options	A)	B)	C)	D)
	Calcination	Oxidation	Hydration	Deoxidization
Right Answer	C			

Question No. 94	What is the level of fineness to be achieved in crushed coal?			
Answer Options	A)	B)	C)	D)
	10-20%	25-40%	50-60%	70-80%
Right Answer	D			

Question No. 95	Partially stabilized zirconia does not exist in which crystalline structure?			
Answer Options	A)	B)	C)	D)
	Cubic	Tetragonal	Hexagonal	Monocyclic
Right Answer	C			

Question No. 96	What disadvantage does silicon carbide have?			
Answer Options	A)	B)	C)	D)
	Tensile strength	Oxidation resistance	Thermal conductivity	Cost
Right Answer	D			

Question No. 97	What do TRIP steels stand for?			
Answer Options	A)	B)	C)	D)
	Transformation Induced Porosity	Transformation Induced Plasticity	Transformation Induced Pearlite	Transformation Induced Property
Right Answer	B			

Question No. 98	What is the maximum service temperature of aluminosilicate glass?			
Answer Options	A)	B)	C)	D)
	220 °C	460 °C	650 °C	1200 °C
Right Answer	C			

Question No. 99	What is the Piling-Bedworth ratio of MgO?			
Answer Options	A)	B)	C)	D)
	0.41	0.79	1.71	2.03
Right Answer	B			

Question No. 100	_____ solders are used for glass-to-glass and glass-to-metal soldering			
Answer Options	A)	B)	C)	D)
	Lead-silver	Tin-zinc	Cadmium-zinc	Indium-tin
Right Answer	D			