

CII – iPATE 1.0 (2020)

Computer Based PAN India Examination

Category: GRADUATE ENGINEER

Engineering Discipline: PRODUCTION ENGINEERING

Question Paper Structure

| Question Nos. | Sections & Topics | | Marks |
|---------------|--|---|------------|
| 1 to 20 | Section I : Cognitive Abilities | <ul style="list-style-type: none">Quantitative AptitudeAnalytical ReasoningData InterpretationEnglish Communication | 20 |
| 21 to 40 | Section II : Professional Abilities | <ul style="list-style-type: none">Project ManagementHealth, Safety & Risk ManagementEnvironmental LawsSocial Responsibility & EthicsFinance & AccountsLegal, Contracts & Arbitration | 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 |
| TOTAL | | | 100 |

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 shuffling at Candidates' terminal

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|----------------|---|-----------------|-----------------|-----------------|
| 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) 55 min | B) 55:38 min | C) 55:54 min | D) 55:46 min |
| Right Answer | B | | | |

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|----------------|--|-------------|------------|------------|
| 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) 1/5 | B) 15/91 | C) 3/91 | D) 3/11 |
| Right Answer | B | | | |

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|----------------|--|---------------|---------------|---------------|
| 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) 72 days | B) 54 days | C) 96 days | D) 64 days |
| Right Answer | B | | | |

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|----------------|---|-----------------|-----------------|-----------------|
| 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) Rs. 26.40 | B) Rs. 23.20 | C) Rs. 24.20 | D) Rs. 25.00 |
| Right Answer | A | | | |

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|----------------|---|----------|----------|----------|
| 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) 32 | B) 43 | C) 38 | D) 45 |
| Right Answer | B | | | |

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

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|----------------|---|----------------------|----------------------------------|----------------------------|
| 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) I and II only | B) I and III only | C) (I and II) or (II and III) | D) Any two of the three |
| Right Answer | D | | | |

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|----------------|--|--|--|--|
| 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) Either statement III alone or statements I and II together are sufficient. | B) Only statement III is sufficient | C) Only statement I and II are sufficient | D) Only statement I, II, and III are sufficient |
| Right Answer | C | | | |

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|----------------|---|-------------------------|-------------|-------------------------|
| 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) Sister | B) Sister - In - Law | C) Niece | D) None of The Above |
| Right Answer | B | | | |

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|-----------------|---|------------|-------------|------------|
| 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) train | B) path | C) wheat | D) holy |
| Right Answer | A | | | |

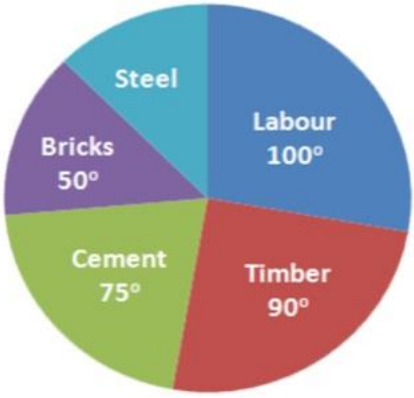
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| Question No. 11 | Given below are four jumbled sentences. Out of the given options pick the one that gives their correct order. | | | |
| | A: Only natural dyes are used in Kalamkari and it involves several steps. B: There are two distinctive styles 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 | | | |

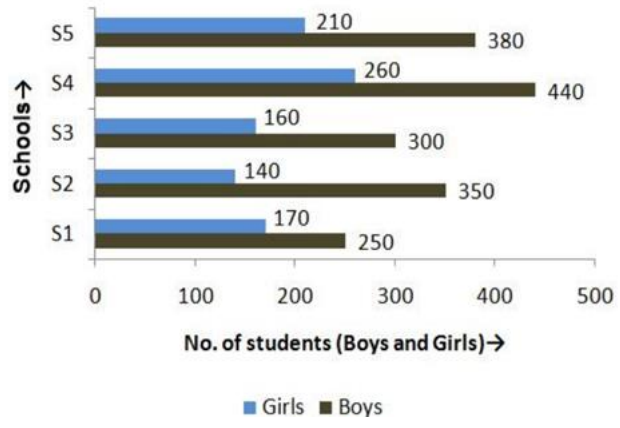
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| Question No. 12 | What is the antonym of MOROSE | | | |
| Answer Options | A) overawed | B) agitated | C) cherubic | D) cheerful |
| Right Answer | D | | | |

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

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| 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 | | | |

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|-----------------|---|--|--|--|
| 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 | | | |

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|------------------------|---|------------------------|------------------------|------------------------|
| <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> | | | |

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|------------------------|--|-------------------|-------------------|-------------------|
| <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 | <p>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</p> <p>The number of male candidates from Andhra Pradesh and Haryana together is what percent of the total number of female candidates from Bihar?</p> <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 |
|-----------------|---|--------------|--------------|--------------|-------|----------------------|-------|--|------|--------|----------------|------|---|---|-------|------|---|---|-----------|------|---|---|--------|------|---|---|---------|------|---|---|-------|------|---|---|
| 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 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 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 grace mark has been given to all candidates, who attempted or not. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

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| Question No. 19 | <p>Read the following information carefully and answer the given question.</p> <p>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.</p> <p>Which of the following person is neither honest nor hard-working but is ambitious?</p> | | | |
| Answer Options | A) Shib | B) Pijush | C) Raju | D) Hari |
| Right Answer | C | | | |


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|-----------------|---|--------------------------|--------------------------|----------------------------|
| Question No. 20 | <p>Read the following information carefully and answer the following question.</p> <p>'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'.</p> <p>If $P \div R + S + Q$, which of the following is true?</p> | | | |
| 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 | | | |

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|-----------------|---|-----------------------|------------------|-------------------|
| 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) |
| | Part number | Specification of Part | Name of the Part | Price of the Part |
| Right Answer | A | | | |

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|-----------------|---|-----------------|------|---------|
| 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 | | | |

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|-----------------|---|-------|----------|-------------|
| 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 | | | |

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|-----------------|--|------------|-----------|--------------------------------|
| 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 | | | |

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|-----------------|---|-----------|-----------------|------------------|
| 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 | | | |

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|-----------------|---|-------|-----------------------|---------------------------------------|
| 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 | | | |

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|-----------------|--|-------------|-----------------|------------------------|
| 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 | | | |

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|-----------------|--|-------------------|------|--------------|
| 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 | | | |

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|-----------------|--|--------|--------|---------|
| 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 | | | |

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|-----------------|---|---|---|------------------|
| 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 | | | |

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|-----------------|---|--|---|------------------|
| 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 | | | |

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|-----------------|--|----------------------------|-----------------------------|--------------------------|
| 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 | | | |

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|-----------------|--|-----------------|------------|------------------|
| 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 | | | |

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|-----------------|--|-----------------------|-----------------------|------------------------------|
| 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 | | | |

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|-----------------|--|---|--|--|
| 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 | | | |

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|-----------------|---|---|---|--------------------------------------|
| 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 | | | |

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|-----------------|--|------------------------------|---|--|
| 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 | | | |

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|-----------------|---|---|--|--|
| 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 | | | |

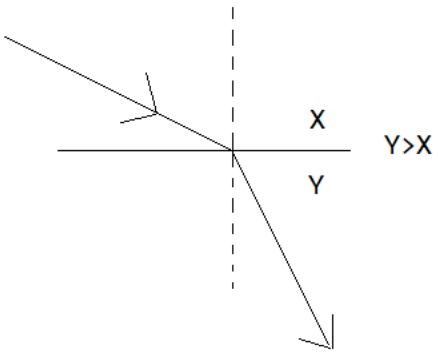
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|-----------------|--|--|---------------------------|--|
| Question No. 39 | What is the primary function of the Law of Tort? | | | |
| Answer Options | A) | B) | C) | D) |
| | Punishment of a wrong motivator | Clarification of the human rights of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

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|-----------------|---|--|--|---|
| Question No. 40 | IDIC 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 | | | |

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|-----------------|--|--|---|--|
| 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 | | | |

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|-----------------|--|-------------|-------------|---------|
| 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) 0.25g | B) 0.50g | C) 0.75g | D) g |
| Right Answer | D | | | |

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

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

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|-----------------|--|--|--------------|---|
| 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) only if F is larger than the weight of the object | B) only while the object suddenly changes from rest to motion | C) always | D) only if the inertia of the object decreases |
| Right Answer | C | | | |

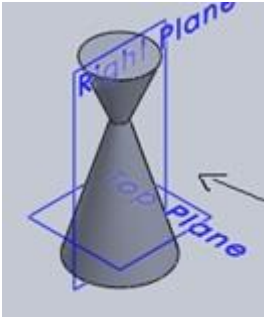
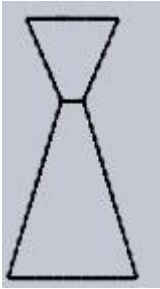
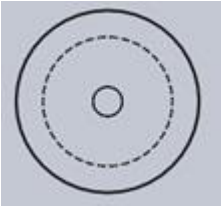
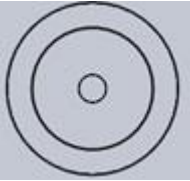
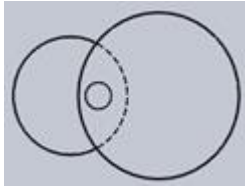
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|-----------------|---|---|-----------------------------------|-----------------------------------|
| Question No. 46 | Which statement is incorrect? | | | |
| Answer Options | A) | B) | C) | D) |
| | All the metals are good conductor of electricity.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

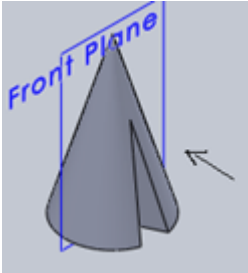
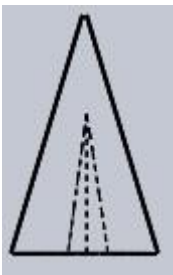


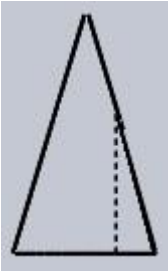
| | | | | |
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| Question No. 47 | Based on the first law of thermodynamics, which one of the following is correct? | | | |
| Answer Options | A) | B) | C) | D) |
| | For an isothermal process, $q = +w$ | For an isochoric process, $\Delta U = -q$ | For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

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|-----------------|---|-----------------|------------------------------|------------------------|
| Question No. 48 | Among the electrolytes Na_2SO_4 , CaCl_2 , $\text{Al}_2(\text{SO}_4)_3$ and NH_4Cl , the most effective coagulating agent for Sb_2S_3 sol is | | | |
| Answer Options | A) | B) | C) | D) |
| | Na_2SO_4 | CaCl_2 | $\text{Al}_2(\text{SO}_4)_3$ | NH_4Cl |
| Right Answer | C | | | |

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|-----------------|--|----------|-----------|----------|
| 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 | | | |

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|-----------------|--|-----------------|------------------|-----------------|
| 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 | | | |

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|------------------------|--|---|--|---|
| <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> | | | |

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| <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> | | | |

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|-----------------|---|------|----------|--------|
| 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 | | | |

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|-----------------|---|--------------|---------------------|-------------|
| 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 | | | |

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|-----------------|--|-------------------------------------|-------------------------------------|---------------------|
| 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 | | | |

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|-----------------|--|--|---|---|
| Question No. 56 | ASME Stands for? | | | |
| Answer Options | A) | B) | C) | D) |
| | American Society of Mechanical Engineers | American Science of Mechanical Engineers | American Scientists of Mechanical Engineers | American Strength of Mechanical Engineers |
| Right Answer | A | | | |

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|-----------------|----------------------------------|-----------------------------------|-----------------------------------|--------------------------------------|
| Question No. 57 | Malleable Metals are that metals | | | |
| Answer Options | A) | B) | C) | D) |
| | which can be Beaten into sheet | which can be Pulled out into wire | which cannot be Beaten into sheet | which cannot be Pulled out into wire |
| Right Answer | C | | | |

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|-----------------|--|---|-------------------|------------------------|
| Question No. 58 | What is purpose of fly wheel? | | | |
| Answer Options | A) | B) | C) | D) |
| | Flywheel is a device to control the variation in speed during each cycle of an engine. | Fly wheel keep the speed of engine within prescribed limit during each cycle. | Both option A & B | Neither option A nor B |
| Right Answer | C | | | |

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|-----------------|--|--|--|---|
| Question No. 59 | In fly wheel maximum fluctuation speed is called as | | | |
| Answer Options | A) | B) | C) | D) |
| | The difference between the maximum and minimum speed during a cycle is called as maximum fluctuation speed | The ratio of average and minimum speed during a cycle is called as maximum fluctuation speed | The ratio of maximum and minimum speed during a cycle is called as maximum fluctuation speed | There is no concept of maximum fluctuation, it is only fluctuation. |
| Right Answer | A | | | |

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|-----------------|--|---|--|--|
| Question No. 60 | Follower during its travel may have one of the following motions: | | | |
| Answer Options | A) | B) | C) | D) |
| | 1) Uniform velocity 2) Simple harmonic motion 3) Uniform acceleration and retardation and 4) Cycloidal motion | 1) Uniform velocity 2) Simple harmonic motion 3) Uniform acceleration and retardation and | 1) Uniform velocity 2) Simple harmonic motion | 1) Uniform velocity 2) Uniform acceleration and retardation |
| Right Answer | A | | | |

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|-----------------|---|----------|----------|----------|
| Question No. 61 | A particle weighing 4 kg moves in a horizontal plan and attached to affixed point on the table by a string 1 metre long. Find the tension in the string, if the particle is making 300 revolution per minute. | | | |
| Answer Options | A) | B) | C) | D) |
| | 402.4 Kg | 300.7 Kg | 500.6 Kg | 404.2 Kg |
| Right Answer | A | | | |

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|-----------------|---|---|------------------------------|---|
| Question No. 62 | What is the formula of Tensile strain | | | |
| Answer Options | A) | B) | C) | D) |
| | Tensile strain = Increase in length / Original length | Tensile strain = $1 / \text{Original length}$ | Tensile strain = Load / Area | Tensile strain = $1 / \text{Original Area}$ |
| Right Answer | A | | | |

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|-----------------|---|--------------------------|--------------------------|--------------------------|
| Question No. 63 | A wooden tie is 75 mm wide, 150 mm deep and 1.50 meter long. It is subjected to an axial pull of 45000N. The Stretch of the member is found to be 0.6380 mm. Find the young's modulus for the material. | | | |
| Answer Options | A) | B) | C) | D) |
| | 9405.1 N/mm ² | 9400.1 N/mm ² | 8405.1 N/mm ² | 9415.1 N/mm ² |
| Right Answer | A | | | |

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|-----------------|--|-----------|---------------|-------------|
| Question No. 64 | When the absorptivity of a body varies with the wavelength of radiation wave, the body is known as | | | |
| Answer Options | A) | B) | C) | D) |
| | Black body | Gray body | Coloured body | Orange body |
| Right Answer | C | | | |

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|-----------------|--|---|---|---------------------------------|
| Question No. 65 | Convection is defined as a process of heat transfer by | | | |
| Answer Options | A) | B) | C) | D) |
| | Action of heat conduction | Combine action of heat conduction and mixing motion | Action of mixing air motion of atmosphere | Action of change in environment |
| Right Answer | B | | | |

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|-----------------|---|---|--|--|
| Question No. 66 | Kirchoff's law is valid only if | | | |
| Answer Options | A) | B) | C) | D) |
| | the wave length of incident radiation and wave length of emitting radiation are same. | property of surface is suitable for radiation | property of surface is suitable for emission with proper wave length | property of surface is suitable for emission and radiation |
| Right Answer | A | | | |

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|-----------------|---|--|---|-----------------------|
| Question No. 67 | When substance is called as phase? | | | |
| Answer Options | A) | B) | C) | D) |
| | When the quantity of matter contained within a system is uniform through both in chemical composition and physical nature | When the quantity of matter contained within a system is uniform in chemical composition | When the quantity of matter contained within a system is uniform as physical nature | Option B and Option C |
| Right Answer | A | | | |

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|-----------------|--|--|--|--|
| Question No. 68 | What is theory of bending? | | | |
| Answer Options | A) | B) | C) | D) |
| | The strain intensity in any fibre is proportional is the distance of the fiber from the neutral layer. | The stress intensity in any fibre is proportional is the distance of the fiber from the neutral layer. | The stress intensity in any fibre is proportional is the distance of the fiber from the upper neutral layer. | The strain intensity in any fibre is proportional is the distance of the fiber from the lower neutral layer. |
| Right Answer | B | | | |

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|-----------------|--|------------------|---------------------|---------------|
| Question No. 69 | When the metals become hard and strong during working and more and more stress is necessary for further deformation this means | | | |
| Answer Options | A) | B) | C) | D) |
| | Strain hardening | Stress Hardening | Plastic deformation | Red hardening |
| Right Answer | A | | | |

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|-----------------|---|--|---|---|
| Question No. 70 | What is Proportional Stress? | | | |
| Answer Options | A) | B) | C) | D) |
| | It is the highest value of the stress up to which stress is proportional to strain. | It is the highest value of stress up to which deformation is elastic | It is the highest value of stress up to which deformation is temporary. | It is the highest value of stress that material sustained without fracture. |
| Right Answer | A | | | |

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|-----------------|---|--|---|--|
| Question No. 71 | What is ferrite? | | | |
| Answer Options | A) | B) | C) | D) |
| | Ferrite is an interstitial solid solution of carbon in low temperature BCC alpha Iron | Ferrite is an interstitial liquid solution of carbon in low temperature BCC alpha Iron | Ferrite is an interstitial liquid solution of Aluminium in low temperature BCC alpha Iron | Ferrite is an interstitial liquid solution of carbon in low temperature HCC alpha Iron |
| Right Answer | A | | | |

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|-----------------|--|---|--|--|
| Question No. 72 | Regarding recrystallization which option is correct one | | | |
| Answer Options | A) | B) | C) | D) |
| | If the annealing temperature is gradually lowered, a point is reached at which worked hardened metal begin to soften and weaken rapidly. | If the annealing temperature is gradually raised, a point is reached at which worked hardened metal begin to soften and weaken rapidly. | If the annealing temperature is gradually lowered, a point is reached at which worked hardened metal begin to hardened and weaken rapidly. | If the annealing temperature is gradually raised, a point is reached at which worked hardened metal begin to hardened and weaken slowly. |
| Right Answer | B | | | |

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|-----------------|------------------------|-----------------------|---|---|
| Question No. 73 | Extrusion is | | | |
| Answer Options | A) | B) | C) | D) |
| | a cold working process | a hot working process | a mix operation of cold and hot working process | a process worked in controlled atmosphere |
| Right Answer | B | | | |

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|-----------------|------------------------|-----------------------|---|---|
| Question No. 74 | Deep drawing is | | | |
| Answer Options | A) | B) | C) | D) |
| | a cold working process | a hot working process | a mix operation of cold and hot working process | a process worked in controlled atmosphere |
| Right Answer | A | | | |

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|-----------------|---|---|---|---|
| Question No. 75 | What is Cold working? | | | |
| Answer Options | A) | B) | C) | D) |
| | is define as solid deformation at temperature below recrystallization temperature | is define as plastic deformation at temperature above recrystallization temperature | is define as plastic deformation at temperature below recrystallization temperature | is define as solid deformation at temperature above recrystallization temperature |
| Right Answer | C | | | |

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|-----------------|---|---|---|---|
| Question No. 76 | What is hot working? | | | |
| Answer Options | A) | B) | C) | D) |
| | is define as solid deformation at temperature below recrystallization temperature | is define as plastic deformation at temperature below recrystallization temperature | is define as plastic deformation at temperature above recrystallization temperature | is define as solid deformation at temperature above recrystallization temperature |
| Right Answer | C | | | |

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|-----------------|---|---|--|--|
| Question No. 77 | Cold working produces the effect as | | | |
| Answer Options | A) | B) | C) | D) |
| | Strength and hardness are decrease but ductility is increase. | Ductility and hardness are decrease but strengths increase. | Strength and ductility are decrease also hardness is decrease. | Strength and hardness are increase but ductility is decreased. |
| Right Answer | D | | | |

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|-----------------|---|--|--|---------------------------------|
| Question No. 78 | What is polymorphism? | | | |
| Answer Options | A) | B) | C) | D) |
| | Different substance, depending on the condition, may crystallizes in different form is polymorphism | One and the same substance, depending on the condition, may crystallizes in different form is polymorphism | The substance possessing properties of metal element are called as polymorphism. | Option A and C both are correct |
| Right Answer | B | | | |

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|-----------------|---|--|--|--|
| Question No. 79 | Ceramic materials have a high modulus of elasticity in range of | | | |
| Answer Options | A) | B) | C) | D) |
| | 7×10^{10} to 42×10^{10} N/m ² | 7×10^{10} to 52×10^{10} N/m ² | 7×10^{10} to 62×10^{10} N/m ² | 7×10^{10} to 72×10^{10} N/m ² |
| Right Answer | A | | | |

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|-----------------|--|--|--|--|
| Question No. 80 | Piezoelectric ceramic effect found in ceramic like | | | |
| Answer Options | A) | B) | C) | D) |
| | CaTiO ₃ ,SiO ₃ ,PbZrO ₂ | BaTiO ₃ ,SiO ₂ ,PbZrO ₃ | CaTiO ₂ ,SiO ₃ ,PbCrO ₂ | BaTiO ₂ ,SiO ₃ ,PbCrO ₂ |
| Right Answer | B | | | |

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|-----------------|---|--|--|--|
| Question No. 81 | What is Sintering? | | | |
| Answer Options | A) | B) | C) | D) |
| | Sintering is a process of mixing of agglomerate of small particles into bulk materials. | Sintering is a process of heating in order to agglomerate small particles into bulk materials. | Sintering is a process of making the metals into small particles | Sintering is a process of cooling in order to agglomerate small particles into bulk materials. |
| Right Answer | B | | | |

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|-----------------|---|--------|-------|--------|
| Question No. 82 | Cast iron are the alloys of iron and carbon containing carbon % more than | | | |
| Answer Options | A) | B) | C) | D) |
| | 0.02 | 0.0222 | 0.019 | 0.0232 |
| Right Answer | A | | | |

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|-----------------|---|--|---|--|
| Question No. 83 | The essential difference between a plain carbon steel and cast iron is | | | |
| Answer Options | A) | B) | C) | D) |
| | Cast iron undergoes the eutectoid reaction during solidification and steel do not exhibits, | Cast iron undergoes the eutectic reaction during solidification and steel do not exhibits, | Cast iron undergoes the eutectoid reaction during liquification and steel do not exhibit, | Cast iron undergoes the eutectic reaction during liquification and steel do not exhibit, |
| Right Answer | B | | | |

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|-----------------|--|---|---|---|
| Question No. 84 | White cast iron is brittle because | | | |
| Answer Options | A) | B) | C) | D) |
| | large amount of cementite is present which is brittle. | large amount of graphite flakes are present which is brittle. | large amount of graphite flakes and cementite are present which is brittle. | large amount of graphite flakes are present which is not brittle. |
| Right Answer | A | | | |

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|-----------------|---|---|---|--|
| Question No. 85 | Grey cast iron is brittle because | | | |
| Answer Options | A) | B) | C) | D) |
| | large amount of cementite is present which act as stress raiser | it contains graphite flakes which act as stress raisers | large amount of graphite flakes and cementite are present which is brittle. | large amount of graphite flakes is present which is not brittle. |
| Right Answer | B | | | |

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|-----------------|---|---|---|---|
| Question No. 86 | Which option is correct about soldering and brazing? | | | |
| Answer Options | A) | B) | C) | D) |
| | Soldering and brazing joint cannot be separated like welding. | Soldering and brazing joint can be separated like welding | Soldering and brazing joint can be separated. | Soldering can but brazing joint cannot be separated like welding. |
| Right Answer | C | | | |

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|-----------------|---|-----------|-----------|----------|
| Question No. 87 | Lap joint, Tee joint and Corner Joint are | | | |
| Answer Options | A) | B) | C) | D) |
| | Fillet weld | Slot weld | Plug weld | Lap weld |
| Right Answer | A | | | |

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|-----------------|--|--|--|--|
| Question No. 88 | What is Go Limit? | | | |
| Answer Options | A) | B) | C) | D) |
| | It refers to upper limit of a shaft and lower limit of a hole. | It refers to lower limit of a shaft and upper limit of a hole. | It refers to lower limit of a shaft and lower limit of a hole. | It refers to upper limit of a shaft and upper limit of a hole. |
| Right Answer | A | | | |

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|-----------------|---|---|--|--|
| Question No. 89 | What is clearance? | | | |
| Answer Options | A) | B) | C) | D) |
| | This is different between the sizes of hole and shaft, after assembly, when this difference is positive | This is different between the sizes of hole and shaft, after assembly, when this difference is negative | This is different between the sizes of hole and shaft, before assembly, when this difference is positive | This is different between the sizes of hole and shaft, before assembly, when this difference is negative |
| Right Answer | C | | | |

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|-----------------|---|--------|--------|-------|
| Question No. 90 | What % of data fall within +/- 3 sigma? | | | |
| Answer Options | A) | B) | C) | D) |
| | 0.9973 | 0.7399 | 0.9937 | 0.997 |
| Right Answer | A | | | |

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|-----------------|---|-------------|-----------------|-----------------|
| Question No. 91 | Straight of any surface is measured by instrument | | | |
| Answer Options | A) | B) | C) | D) |
| | Sprit level and Auto-Collimator | Sprit level | Auto-Collimator | Level indicator |
| Right Answer | A | | | |

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|-----------------|---|---|-----------------------------|-------------------|
| Question No. 92 | V- Blocks are use in workshop for | | | |
| Answer Options | A) | B) | C) | D) |
| | Checking roundness of cylindrical workpiece only. | Checking roundness of cylindrical workpiece and marking centers accurately. | Marking centers accurately. | None of The Above |
| Right Answer | B | | | |

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|-----------------|---|---|---|---|
| Question No. 93 | What is dedendum in case of external thread? | | | |
| Answer Options | A) | B) | C) | D) |
| | This is the radial distance between the pitch and major cylinder. | There is no dedendum in case of external thread | This is the radial distance between the pitch and minor cylinder. | Dedendum is nothing but angular depth of thread |
| Right Answer | C | | | |

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|-----------------|--|-----------|--------------|-----------|
| Question No. 94 | In pareto diagram which vertical axis represents Data? | | | |
| Answer Options | A) | B) | C) | D) |
| | Right side | Left side | Lorenz curve | Frequency |
| Right Answer | B | | | |

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|-----------------|---|---------------|--------------------|----------------------|
| Question No. 95 | Who gave the 14 points for Quality improvement to the top management? | | | |
| Answer Options | A) | B) | C) | D) |
| | Dr. WE Deming | Dr. J M Juran | Dr.Genichi Taguchi | Prof P C Mahalanobis |
| Right Answer | A | | | |

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|-----------------|--|--|--|--|
| Question No. 96 | Use of P Chart | | | |
| Answer Options | A) | B) | C) | D) |
| | Whenever subgroup size is variable, control chart for fraction defective - P chart use | Whenever subgroup size is constant, control chart for fraction defective - P chart use | Whenever subgroup size is constant, control chart for fraction defects - P chart use | Whenever subgroup size is variable, control chart for fraction defects - P chart use |
| Right Answer | A | | | |

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|-----------------|---|---|--|---|
| Question No. 97 | Category of Cost of quality | | | |
| Answer Options | A) | B) | C) | D) |
| | Appraisal cost External Failure cost | Appraisal cost Prevention cost Internal failure cost External failure cost | Prevention cost Internal failure cost | Appraisal cost Rework Cost Internal failure cost External Failure cost |
| Right Answer | B | | | |

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|-----------------|---|-------|--------------------|------|
| Question No. 98 | For Six Sigma which methodology is used | | | |
| Answer Options | A) | B) | C) | D) |
| | PDCA | DMAIC | Project Management | PDMC |
| Right Answer | B | | | |

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|-----------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|
| Question No. 99 | Six sigma quality performance means | | | |
| Answer Options | A) | B) | C) | D) |
| | 3.4 defects per million opportunity | 3.5 defects per million opportunity | 2.4 defects per million opportunity | 6.0 defects per million opportunity |
| Right Answer | A | | | |

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|------------------|---|--------------|--------------------|----------------------|
| Question No. 100 | Who originated the zero-defect concept? | | | |
| Answer Options | A) | B) | C) | D) |
| | Philip B Crosby | Dr.J M Juran | Dr.Genichi Taguchi | Prof P C Mahalanobis |
| Right Answer | A | | | |