भारत इलेक्ट्रॉनिक्स
BHARAT ELECTRONICS
QUALITY, TECHNOLOGY, INNOVATION

Participant ID	
Participant Name	
Test Center Name	iON Digital Zone iDZ Luthergiri
Test Date	20/12/2025
Test Time	9:00 AM - 11:00 AM
Subject	Probationary Engineer Mechanical

Section : **General Aptitude**

Q.1 **If 25 workers earn ₹10,000 in 2 days, how much will 20 workers earn in 3 days at the same rate of work?**

Ans
✗ A. ₹12,600
✗ B. ₹12,400
✓ C. ₹12,000
✗ D. ₹12,200

Question ID : **441009523068**
Option 1 ID : **4410092047694**
Option 2 ID : **4410092047693**
Option 3 ID : **4410092047691**
Option 4 ID : **4410092047692**
Status : **Answered**
Chosen Option : **C**

Q.2 Raman's income is ₹41,500. He saves 12.5% of his income. If his income increases by 20% and his expenditure increases by 10%, then by what percentage will his savings increase?

Ans
✗ A. 86%
✓ B. 90%
✗ C. 78%
✗ D. 82%

Question ID : **441009562049**
Option 1 ID : **4410092203464**
Option 2 ID : **4410092203463**
Option 3 ID : **4410092203466**
Option 4 ID : **4410092203465**
Status : **Not Attempted and Marked For Review**
Chosen Option : **--**

Q.3 Which of the following numbers is divisible by both 3 and 11?

Ans
✓ A. 462
✗ B. 728
✗ C. 389
✗ D. 653

Question ID : **441009334684**
Option 1 ID : **4410091304695**
Option 2 ID : **4410091304697**
Option 3 ID : **4410091304694**
Option 4 ID : **4410091304696**
Status : **Answered**
Chosen Option : **A**

Q.4 If $4p + 4q + r = 24$, $2p - 4q + r = 0$, and $5p - 4q - 5r = 12$, then what is the value of $p + q - r$?

Ans
✗ A. 2
✗ B. 1
✓ C. 6
✗ D. 4

Question ID : **4410091221202**
Option 1 ID : **4410094818232**
Option 2 ID : **4410094818231**
Option 3 ID : **4410094818234**
Option 4 ID : **4410094818233**
Status : **Answered**
Chosen Option : **C**

Q.5 Ketan invested ₹59,000 in a bank for 2 years. The rate of interest for the first year is 5% per annum and for the second year it is 1% per annum more than the first year. Find the interest (in ₹) he will receive in two years if it is compounded annually.

Ans
✗ A. 6,467
✗ B. 6,917
✗ C. 6,317
✓ D. 6,667

Question ID : **441009572952**
Option 1 ID : **4410092246929**
Option 2 ID : **4410092246931**
Option 3 ID : **4410092246930**
Option 4 ID : **4410092246928**
Status : **Answered**
Chosen Option : **D**

Q.6 A sum of ₹4,540 is divided among Rajesh, Seema and Naresh such that if their shares are reduced by ₹440, ₹570 and ₹930, respectively, they are in the ratio of 6 : 4 : 3. What is the actual share of Seema (in ₹)?

Ans
✗ A. 1296
✗ B. 1310
✓ C. 1370
✗ D. 1332

Question ID : **441009898374**
Option 1 ID : **4410093547567**
Option 2 ID : **4410093547568**
Option 3 ID : **4410093547566**
Option 4 ID : **4410093547569**
Status : **Answered**
Chosen Option : **C**

Q.7 An umbrella dealer incurs an expense of ₹200 for producing each umbrella. An additional expenditure of ₹26,000 is incurred independent of the number of umbrellas manufactured by him. During season, he sells an umbrella for ₹300 each and in off season, the selling price of an umbrella comes down to ₹150 each. If the dealer produces 2000 umbrellas, what should be the number of umbrellas that he should sell in the season to breakeven assuming that he is able to sell all the umbrellas?

Ans
✗ A. 935
✓ B. 840
✗ C. 1000
✗ D. 750

Question ID : **441009542567**
Option 1 ID : **4410092125665**
Option 2 ID : **4410092125666**
Option 3 ID : **4410092125664**
Option 4 ID : **4410092125667**
Status : **Answered**
Chosen Option : **B**

Q.8 The average of 8 numbers is 53. If each number is decreased by 7, what will the new average be?

Ans
✔ A. 46
✘ B. 39
✘ C. 8
✘ D. 53

Question ID : **441009581434**
Option 1 ID : **4410092280862**
Option 2 ID : **4410092280864**
Option 3 ID : **4410092280865**
Option 4 ID : **4410092280863**
Status : **Answered**
Chosen Option : **A**

Q.9 A man sold an article for ₹879 after giving two successive discounts on its marked price of ₹4,395. The first discount was d% of the marked price and the second discount was equal in rupees to the first discount amount. Find the value of d.

Ans
✔ A. 40
✘ B. 35
✘ C. 41
✘ D. 38

Question ID : **441009272666**
Option 1 ID : **4410091059211**
Option 2 ID : **4410091059213**
Option 3 ID : **4410091059212**
Option 4 ID : **4410091059214**
Status : **Answered**
Chosen Option : **A**

Q.10 A rectangular piece of paper is 44 cm long and 69 cm wide. A cylinder is formed by rolling the paper along its length. Find the curved surface area of the cylinder.

Ans
✘ A. 3002 cm2
✘ B. 3081 cm2
✔ C. 3036 cm2
✘ D. 3024 cm2

Question ID : **441009600331**
Option 1 ID : **4410092356443**
Option 2 ID : **4410092356442**
Option 3 ID : **4410092356441**
Option 4 ID : **4410092356444**
Status : **Answered**
Chosen Option : **C**

Q.11

$$\text{The simplified value of } \frac{\left(\frac{20}{24}\right)}{\left(\frac{20}{7}\right)} \div \left(\frac{4}{8} \times \frac{16}{12} + \frac{4}{8}\right) + \frac{7}{5} \div \frac{28}{11} \text{ of } \frac{11}{5} \text{ is}$$

Ans

✗ A. $\frac{4}{7}$

✗ B. $\frac{3}{10}$

✓ C. $\frac{1}{2}$

✗ D. $\frac{6}{11}$

Question ID : **441009912330**
Option 1 ID : **4410093603573**
Option 2 ID : **4410093603574**
Option 3 ID : **4410093603571**
Option 4 ID : **4410093603572**
Status : **Answered**
Chosen Option : **C**

Q.12 **A scooter, travelling at five-sevenths of its actual speed, covers 29 km in 2 hour 49 minutes 10 seconds. Find the actual speed (in km/hr) of the scooter.**

Ans

✗ A. 14.8

✓ B. 14.4

✗ C. 15.6

✗ D. 15.2

Question ID : **441009543941**
Option 1 ID : **4410092131161**
Option 2 ID : **4410092131160**
Option 3 ID : **4410092131163**
Option 4 ID : **4410092131162**
Status : **Not Attempted and Marked For Review**
Chosen Option : **--**

Section : **Reasoning**

Q.1 In a certain code language,
'A $ B' means 'A is the mother of B';
'A # B' means 'A is the father of B';
'A ! B' means 'A is the sister of B';
'A @ B' means 'A is the brother of B';
'A * B' means 'A is the wife of B';
'A > B' means 'A is the husband of B';
'A % B' means 'A is the father-in-law of B' and
'A ^ B' means 'A is the mother-in-law of B'.
Based on the above information, how is A related to Q if
a) Q $ F @ B ! R * S # T and
b) P # B * A?771

Ans
✗ A. Son
✗ B. Brother
✗ C. Father
✓ D. Son-in-law

Question ID : **441009879503**
Option 1 ID : **4410093471665**
Option 2 ID : **4410093471667**
Option 3 ID : **4410093471668**
Option 4 ID : **4410093471666**
Status : **Answered**
Chosen Option : **D**

Q.2 If 1 is added to each even digit and 2 is subtracted from each odd digit in the number 8546327, how many digits will appear more than once in the new number thus formed?

Ans
✗ A. One
✗ B. Four
✗ C. Three
✓ D. Two

Question ID : **441009585671**
Option 1 ID : **4410092297810**
Option 2 ID : **4410092297813**
Option 3 ID : **4410092297812**
Option 4 ID : **4410092297811**
Status : **Answered**
Chosen Option : **D**

Q.3 Based on the English alphabetical order, three of the following four letter-cluster pairs are alike in a certain way and thus form a group. Which letter-cluster pair DOES NOT belong to that group?
(Note: The odd one out is not based on the number of consonants/vowels or their position in the letter-cluster.)

Ans
✔ A. DF-GJ
✘ B. PR-SU
✘ C. MO-PR
✘ D. HJ-KM

Question ID : **441009782725**
Option 1 ID : **4410093084903**
Option 2 ID : **4410093084904**
Option 3 ID : **4410093084906**
Option 4 ID : **4410093084905**
Status : **Answered**
Chosen Option : **A**

Q.4 Based on the English alphabetical order, three of the following four letter-cluster pairs are alike in a certain way and thus form a group. Which letter-cluster pair DOES NOT belong to that group?
(Note: The odd one out is not based on the number of consonants/vowels or their position in the letter-cluster.)

Ans
✘ A. FG - CD
✘ B. JK - GH
✔ C. LO - KL
✘ D. TU - QR

Question ID : **441009777716**
Option 1 ID : **4410093064867**
Option 2 ID : **4410093064868**
Option 3 ID : **4410093064869**
Option 4 ID : **4410093064870**
Status : **Answered**
Chosen Option : **C**

Q.5 Each vowel in the word CURATES is changed to the letter immediately following it in the English alphabetical order and each consonant is changed to the letter immediately preceding it in the English alphabetical order.
How many letters are common between the original word and in the group of letters thus formed?

Ans
✘ A. 1
✘ B. 0
✘ C. 3
✔ D. 2

Question ID : **441009798017**
Option 1 ID : **4410093146068**
Option 2 ID : **4410093146067**
Option 3 ID : **4410093146070**
Option 4 ID : **4410093146069**
Status : **Answered**
Chosen Option : **D**

Q.6 A, E, I, O, U and P live on six different floors of the same building. The lowermost floor in the building is numbered 1, the floor above it, number 2 and so on till, the topmost floor, which is numbered 6.
Only two people live between E and U. No one lives below P. Only I lives on a floor immediately above E. O lives on floor number 4.

Who lives on floor number 3?

Ans
✗ A. U
✓ B. A
✗ C. P
✗ D. E

Question ID : **441009879295**
Option 1 ID : **4410093470836**
Option 2 ID : **4410093470834**
Option 3 ID : **4410093470835**
Option 4 ID : **4410093470833**
Status : **Answered**
Chosen Option : **B**

Q.7 CLUB is related to QZIP in a certain way based on the English alphabetical order. In the same way, GPYF is related to UDMT. To which of the following options is WFOV related, following the same logic?

Ans
✗ A. KTJC
✗ B. JOYT
✓ C. KTCJ
✗ D. KJOU

Question ID : **441009810903**
Option 1 ID : **4410093197736**
Option 2 ID : **4410093197738**
Option 3 ID : **4410093197735**
Option 4 ID : **4410093197737**
Status : **Answered**
Chosen Option : **C**

Q.8 What should come in place of the question mark (?) in the given series based on the English alphabetical order?
TRM PNO LJQ ? DBU

Ans
✗ A. GFR
✗ B. JHY
✓ C. HFS
✗ D. HGF

Question ID : **4410091449728**
Option 1 ID : **4410095727393**
Option 2 ID : **4410095727392**
Option 3 ID : **4410095727394**
Option 4 ID : **4410095727395**
Status : **Answered**
Chosen Option : **C**

Q.9 Refer to the following letter and symbol series and answer the question that follows. Counting to be done from left to right only.

(Left) $ & C M Z S B \ + L Q G Z $ V A T E U # C (Right)

How many such symbols are there each of which is immediately preceded by a vowel and also immediately followed by a letter?

Ans
- ✔ A. One
- ✘ B. None
- ✘ C. Two
- ✘ D. Three

Question ID : **4410096525**
Option 1 ID : **44100925852**
Option 2 ID : **44100925851**
Option 3 ID : **44100925853**
Option 4 ID : **44100925854**
Status : **Answered**
Chosen Option : **A**

Q.10 Refer to the following letter series and answer the question that follows. Counting to be done from left to right only.

(Left) P L A W S M O I E Y U C X K N F B V J G H (Right)

How many such consonants are there, each of which is immediately preceded by a vowel and also immediately followed by a vowel?

Ans
- ✘ A. None
- ✘ B. Two
- ✘ C. Three
- ✔ D. One

Question ID : **441009797367**
Option 1 ID : **4410093143467**
Option 2 ID : **4410093143469**
Option 3 ID : **4410093143470**
Option 4 ID : **4410093143468**
Status : **Answered**
Chosen Option : **A**

Q.11 What will come in place of the question mark (?) in the following equation, if '+' and '−' are interchanged and '×' and '÷' are interchanged?

12 ÷ 5 + 8 × 4 − 6 = ? + 4

Ans
✗ A. 70
✓ B. 68
✗ C. 66
✗ D. 64

Question ID : **441009555517**
Option 1 ID : **4410092177385**
Option 2 ID : **4410092177384**
Option 3 ID : **4410092177383**
Option 4 ID : **4410092177382**
Status : **Answered**
Chosen Option : **D**

Q.12 Seven people F, G, H, I, V, W, and X are sitting in a straight line facing north. Only W sits to the left of I. Only three people sit between I and G. Only X sits between V and F and V is not an immediate neighbour of G.
How many people sit between H and V?

Ans
✗ A. Two
✗ B. Four
✗ C. One
✓ D. Three

Question ID : **441009787076**
Option 1 ID : **4410093102304**
Option 2 ID : **4410093102306**
Option 3 ID : **4410093102303**
Option 4 ID : **4410093102305**
Status : **Answered**
Chosen Option : **D**

Q.13 FH 13 is related to AD -3 in a certain way. In the same way, LL 9 is related to GH -7. To which of the following is LG 7 related, following the same logic?

Ans
✓ A. GC -9
✗ B. HB -11
✗ C. HC -9
✗ D. GB -11

Question ID : **441009787670**
Option 1 ID : **4410093104680**
Option 2 ID : **4410093104681**
Option 3 ID : **4410093104682**
Option 4 ID : **4410093104679**
Status : **Answered**
Chosen Option : **A**

Section : **Question Based on Mechanical Engineering**

Q.1 What is the type of assembly drawing used when components of same shape but different dimensions are to be manufactured?

Ans
✗ A. Drawing for instruction manual
✗ B. Drawing for installation
✗ C. Drawing for catalogue
✓ D. Tabular drawing

Question ID : **4410091514842**
Option 1 ID : **4410095982793**
Option 2 ID : **4410095982792**
Option 3 ID : **4410095982795**
Option 4 ID : **4410095982794**
Status : **Not Answered**
Chosen Option : **--**

Q.2 The compressibility factor Z = PV/RT is exactly equal to 1 for an ideal gas. For a real gas, Z is closest to 1 (i.e., the gas behaves most like an ideal gas) under which of the following conditions?

Ans
✗ A. Very high density
✗ B. High pressure and low temperature
✗ C. Pressure near critical point
✓ D. Low pressure and high temperature

Question ID : **4410091459950**
Option 1 ID : **4410095767984**
Option 2 ID : **4410095767981**
Option 3 ID : **4410095767983**
Option 4 ID : **4410095767982**
Status : **Answered**
Chosen Option : **D**

Q.3 The true length of a line parallel to the vertical plane (VP) and inclined to the horizontal plane (HP) will be visible in _____.

Ans
✗ A. the top view
✗ B. the side view
✓ C. the front view
✗ D. both the front and side views

Question ID : **4410091514179**
Option 1 ID : **4410095980646**
Option 2 ID : **4410095980648**
Option 3 ID : **4410095980647**
Option 4 ID : **4410095980649**
Status : **Not Answered**
Chosen Option : **--**

Q.4 **Vibration isolators work best when:**

Ans
- ✗ A. excitation equals natural frequency
- ✓ B. excitation frequency is much higher than natural frequency
- ✗ C. system is overdamped
- ✗ D. damping is zero

Question ID : **441009270728**
Option 1 ID : **4410091051749**
Option 2 ID : **4410091051748**
Option 3 ID : **4410091051751**
Option 4 ID : **4410091051750**
Status : **Not Answered**
Chosen Option : **--**

Q.5 **The friction angle (β) in the Merchant circle diagram is the angle between:**

Ans
- ✗ A. Shear force and resultant force R
- ✓ B. Normal to rake face and resultant force R
- ✗ C. Normal to share plane and resultant force R
- ✗ D. Shear plane and cutting velocity

Question ID : **4410091482693**
Option 1 ID : **4410095857760**
Option 2 ID : **4410095857759**
Option 3 ID : **4410095857758**
Option 4 ID : **4410095857757**
Status : **Answered**
Chosen Option : **C**

Q.6 **Which among the following layout is best suited for manufacturing standardised products with high, stable demand?**

Ans
- ✗ A. Fixed layout
- ✗ B. Process layout
- ✗ C. Group technology layout
- ✓ D. Product layout

Question ID : **4410091494731**
Option 1 ID : **4410095904408**
Option 2 ID : **4410095904407**
Option 3 ID : **4410095904409**
Option 4 ID : **4410095904410**
Status : **Answered**
Chosen Option : **A**

Q.7 **Which of the following correctly describes Least Material Condition (LMC)?**

Ans
✗ A. The condition where the feature contains the greatest amount of material

✗ B. A condition where assembly is guaranteed to be interference fit

✓ C. The condition where the feature contains the least amount of material

✗ D. A condition where assembly is guaranteed to be clearance fit

Question ID : **4410091503445**
Option 1 ID : **4410095937980**
Option 2 ID : **4410095937982**
Option 3 ID : **4410095937981**
Option 4 ID : **4410095937983**
Status : **Answered**
Chosen Option : **C**

Q.8 **The monthly demands for an office furniture in five consecutive months are 600, 628, 670, 735 and 809, respectively. What is the forecast for the fourth period using the 3-period moving average method?**

Ans
✗ A. 658

✓ B. 633

✗ C. 678

✗ D. 738

Question ID : **441009337121**
Option 1 ID : **4410091314507**
Option 2 ID : **4410091314505**
Option 3 ID : **4410091314506**
Option 4 ID : **4410091314504**
Status : **Answered**
Chosen Option : **D**

Q.9 **As per Taylor's principle, which among the following is true for GO and NO-GO gauges?**

Ans
✗ A. Both Go and NO Go gauges check maximum material condition

✗ B. Both Go and NO Go gauges check minimum material condition

✗ C. Go gauge check minimum material condition, No Go check maximum material condition

✓ D. Go gauge check maximum material condition, No Go check minimum material condition

Question ID : **4410091495673**
Option 1 ID : **4410095908015**
Option 2 ID : **4410095908016**
Option 3 ID : **4410095908014**
Option 4 ID : **4410095908013**
Status : **Answered**
Chosen Option : **D**

Q.10 **Which of the following is INCORRECT for the correlation technique used in forecasting?**

Ans

✗ A. The value of correlation coefficient lies between -1 and +1.

✗ B. Measure the strength and direction of the linear relationship between variables to aid in prediction.

✗ C. Correlation technique is used to develop demand function for products such as automobiles, refrigerators.

✓ D. If correlation coefficient is 0 it means X and Y are completely unrelated.

Question ID : **4410091500626**
Option 1 ID : **4410095927400**
Option 2 ID : **4410095927398**
Option 3 ID : **4410095927401**
Option 4 ID : **4410095927399**
Status : **Answered**
Chosen Option : **C**

Q.11 In a damped vibration isolator, increasing the damping is bene

Ans

✓ A. helps suppress the transmitted vibration forces

✗ B. only alters the system stiffness

✗ C. does not influence the transmitted forces

✗ D. leads to higher vibration transmission

Question ID : **4410091471896**
Option 1 ID : **4410095815467**
Option 2 ID : **4410095815470**
Option 3 ID : **4410095815469**
Option 4 ID : **4410095815468**
Status : **Not Answered**
Chosen Option : **--**

Q.12 **In steel hardening, the main microstructural transformation that produces hardness is:**

Ans

✗ A. Austenite → Pearlite

✗ B. Ferrite → Cementite

✗ C. Austenite → Bainite

✓ D. Austenite → Martensite

Question ID : **4410091477876**
Option 1 ID : **4410095838840**
Option 2 ID : **4410095838839**
Option 3 ID : **4410095838837**
Option 4 ID : **4410095838838**
Status : **Answered**
Chosen Option : **D**

Q.13 Which method is commonly used to analyse statically indeterminate frames?

Ans
✗ A. Method of joints
✗ B. Parallelogram law
✓ C. Flexibility method
✗ D. Method of sections

Question ID : **4410091452922**
Option 1 ID : **4410095740002**
Option 2 ID : **4410095740005**
Option 3 ID : **4410095740004**
Option 4 ID : **4410095740003**
Status : **Answered**
Chosen Option : **D**

Q.14 The pattern type that uses a master pattern and multiple cavity molds for high-volume production is:

Ans
✗ A. Gated pattern
✓ B. Match-plate pattern
✗ C. Skeleton pattern
✗ D. Follow board pattern

Question ID : **4410091477932**
Option 1 ID : **4410095839059**
Option 2 ID : **4410095839060**
Option 3 ID : **4410095839061**
Option 4 ID : **4410095839062**
Status : **Answered**
Chosen Option : **B**

Q.15 A diathermal, movable piston-cylinder assembly encloses a gas, and the gas does work through expansion by pushing the piston while heat flows in from the surroundings. What is the correct classification of the system and its boundary?

Ans
✗ A. Closed system, adiabatic and fixed boundary
✓ B. Closed system, non-adiabatic and movable boundary
✗ C. Open system, adiabatic boundary
✗ D. Isolated system, fixed boundary

Question ID : **4410091460495**
Option 1 ID : **4410095770164**
Option 2 ID : **4410095770162**
Option 3 ID : **4410095770161**
Option 4 ID : **4410095770163**
Status : **Answered**
Chosen Option : **B**

Q.16 Under a variable amplitude loading history, the component undergoes the following: at stress level S_1 the number of cycles applied n_1=20,000 and from the S-N data the number of cycles to failure at S_1 is N_1=100,000. At a different stress level S_2, n_2=10,000 while N_2=50,000. According to Miner's Rule, what is the cumulative damage and what is the prediction?

Ans
- ✗ A. Damage D=0.20+0.40=0.60; component has 40% life remaining
- ✓ B. Damage D=0.20+0.20=0.40; component has 60% life remaining
- ✗ C. Damage D=0.20+0.50=0.70; component has 30% life remaining
- ✗ D. Damage D=0.80+0.20=1.00; component has reached life expectancy

Question ID : **4410091451810**
Option 1 ID : **4410095735711**
Option 2 ID : **4410095735708**
Option 3 ID : **4410095735709**
Option 4 ID : **4410095735710**
Status : **Not Answered**
Chosen Option : **--**

Q.17 Which one of the following ranges is a typical value of the coefficient of friction μ for a well-lubricated full journal sliding bearing (plain bearing) under hydrodynamic conditions?

Ans
- ✗ A. 1 – 2
- ✗ B. 0.3 – 0.4
- ✓ C. 0.001 – 0.005
- ✗ D. 0.6 – 0.8

Question ID : **4410091451908**
Option 1 ID : **4410095736095**
Option 2 ID : **4410095736097**
Option 3 ID : **4410095736094**
Option 4 ID : **4410095736096**
Status : **Not Answered**
Chosen Option : **--**

Q.18 A machine shaft is subjected to a **completely reversed bending stress**. Which term becomes **zero** in the Soderberg equation?

Ans
- ✗ A. Endurance limit
- ✗ B. Yield stress
- ✗ C. Alternating stress
- ✓ D. Mean stress

Question ID : **4410091451826**
Option 1 ID : **4410095735774**
Option 2 ID : **4410095735775**
Option 3 ID : **4410095735772**
Option 4 ID : **4410095735773**
Status : **Answered**
Chosen Option : **D**

Q.19 What is the major advantage of indirect extrusion over direct extrusion?

Ans
✔ A. Lower frictional forces and reduced extrusion load
✘ B. Ability to produce hollow profiles with simple dies
✘ C. Better dimensional accuracy of the extruded product
✘ D. Capability to extrude materials of higher hardness

Question ID : **4410091477965**
Option 1 ID : **4410095839191**
Option 2 ID : **4410095839194**
Option 3 ID : **4410095839192**
Option 4 ID : **4410095839193**
Status : **Answered**
Chosen Option : **B**

Q.20 Two blocks, A and B, are connected by an inextensible string passing over a smooth pulley. If block A moves upward with an acceleration of 2 m/s^2, the acceleration of block B is _____.

Ans
✘ A. -1 m/s2
✔ B. -2 m/s2
✘ C. 0 m/s2
✘ D. 2 m/s2

Question ID : **4410091453444**
Option 1 ID : **4410095742066**
Option 2 ID : **4410095742064**
Option 3 ID : **4410095742063**
Option 4 ID : **4410095742065**
Status : **Answered**
Chosen Option : **B**

Q.21 The main difference between a propeller turbine and a Kaplan turbine is:

Ans
✘ A. The type of draft tube attached to the turbine casing
✘ B. The method used for regulating water discharge rate
✘ C. The number of blades used in the runner design
✔ D. The adjustable nature of the runner blade pitch angle

Question ID : **4410091456108**
Option 1 ID : **4410095752784**
Option 2 ID : **4410095752785**
Option 3 ID : **4410095752782**
Option 4 ID : **4410095752783**
Status : **Not Answered**
Chosen Option : **--**

Q.22 **Read the following statements and select the correct option.**
Statement I: The dynamic equivalent load is stationary radial load in case of radial ball bearing.
Statement II: The dynamic equivalent load is stationary axial load in case of thrust ball bearing.

Ans
✔ A. Only statement II is correct.
✘ B. Only statement I is correct.
✘ C. Both statement I and statement II are correct.
✘ D. Both statement I and statement II are incorrect.

Question ID : **441009191631**
Option 1 ID : **441009755265**
Option 2 ID : **441009755264**
Option 3 ID : **441009755262**
Option 4 ID : **441009755263**
Status : **Answered**
Chosen Option : **C**

Q.23 **Which type of comparator is Sigma comparator?**

Ans
✘ A. Optical comparator
✘ B. Electrical comparator
✔ C. Mechanical comparator
✘ D. Pneumatic comparator

Question ID : **4410091503569**
Option 1 ID : **4410095938487**
Option 2 ID : **4410095938484**
Option 3 ID : **4410095938485**
Option 4 ID : **4410095938486**
Status : **Answered**
Chosen Option : **A**

Q.24 **Which phenomenon is minimised by double tempering of high-alloy steels?**

Ans
✘ A. Secondary hardening
✘ B. Carbide coarsening
✘ C. Reduction of corrosion susceptibility
✔ D. Retained austenite decomposition

Question ID : **4410091477908**
Option 1 ID : **4410095838964**
Option 2 ID : **4410095838965**
Option 3 ID : **4410095838966**
Option 4 ID : **4410095838963**
Status : **Answered**
Chosen Option : **A**

Q.25 **Modulating inlet guide vanes on a centrifugal compressor is a control method that primarily works by:**

Ans
- ✗ A. Changing the density of the inlet gas
- ✗ B. Varying the compressor speed directly
- ✓ C. Pre-swirling the inlet flow, thereby altering the compressor's head-flow characteristic
- ✗ D. By passing a portion of the discharge flow back to the suction

Question ID : **4410091463602**
Option 1 ID : **4410095782531**
Option 2 ID : **4410095782530**
Option 3 ID : **4410095782532**
Option 4 ID : **4410095782533**
Status : **Not Answered**
Chosen Option : **--**

Q.26 **The slope of the linear portion of the stress–strain curve gives:**

Ans
- ✗ A. Modulus of resilience of the material
- ✗ B. Yield strength of the material
- ✗ C. Ultimate tensile strength of the material
- ✓ D. Modulus of elasticity of the material

Question ID : **4410091471169**
Option 1 ID : **4410095812612**
Option 2 ID : **4410095812609**
Option 3 ID : **4410095812611**
Option 4 ID : **4410095812610**
Status : **Answered**
Chosen Option : **D**

Q.27 **A thermodynamic property that cannot be measured directly but is determined from measurable quantities is known as:**

Ans
- ✗ A. Quasi property
- ✓ B. Derived property
- ✗ C. Inexact property
- ✗ D. Secondary property

Question ID : **4410091460516**
Option 1 ID : **4410095770241**
Option 2 ID : **4410095770243**
Option 3 ID : **4410095770244**
Option 4 ID : **4410095770242**
Status : **Answered**
Chosen Option : **B**

Q.28 Which of the following is a primary function of fixture?

Ans
✔ A. Holding and locating the workpiece
✘ B. Holding the workpiece only
✘ C. Holding, locating and guiding the cutting tool
✘ D. Guiding the cutting tool only

Question ID : **4410091501188**
Option 1 ID : **4410095929161**
Option 2 ID : **4410095929163**
Option 3 ID : **4410095929160**
Option 4 ID : **4410095929162**
Status : **Answered**
Chosen Option : **C**

Q.29 The frontal method uses the structure of the finite element method. It is the _____ of the Gaussian elimination method.

Ans
✘ A. Structure
✘ B. Algorithm
✘ C. Data
✔ D. Variation

Question ID : **4410091511446**
Option 1 ID : **4410095969833**
Option 2 ID : **4410095969835**
Option 3 ID : **4410095969836**
Option 4 ID : **4410095969834**
Status : **Not Answered**
Chosen Option : **--**

Q.30 In an isochronous governor, the speed v/s radius curve is:

Ans
✘ A. a sloping upward
✔ B. a horizontal line
✘ C. parabolic
✘ D. a vertical line

Question ID : **441009269793**
Option 1 ID : **4410091048240**
Option 2 ID : **4410091048238**
Option 3 ID : **4410091048241**
Option 4 ID : **4410091048239**
Status : **Not Answered**
Chosen Option : **--**

Q.31 **In an Ammonia-Water vapour absorption system, the absorber is designed to efficiently absorb ammonia vapour into water. What component is primarily responsible for maintaining the low pressure necessary for this absorption to occur?**

Ans
- ✗ A. The refrigerant (ammonia) itself
- ✓ B. The pump
- ✗ C. The expansion valve
- ✗ D. The generator

Question ID : **4410091463451**
Option 1 ID : **4410095781937**
Option 2 ID : **4410095781936**
Option 3 ID : **4410095781934**
Option 4 ID : **4410095781935**
Status : **Answered**
Chosen Option : **A**

Q.32 **The turning effect produced by two equal and opposite forces whose lines of action do not coincide is known as _____.**

Ans
- ✗ A. Torque force
- ✗ B. Resultant
- ✓ C. Couple
- ✗ D. Moment

Question ID : **4410091445028**
Option 1 ID : **4410095708711**
Option 2 ID : **4410095708712**
Option 3 ID : **4410095708710**
Option 4 ID : **4410095708709**
Status : **Answered**
Chosen Option : **C**

Q.33 **What does the term M/EI represent in the double integration method?**

Ans
- ✗ A. Shear strain
- ✗ B. Flexural rigidity
- ✓ C. Curvature of the beam
- ✗ D. Deflection per unit length

Question ID : **4410091469935**
Option 1 ID : **4410095807674**
Option 2 ID : **4410095807677**
Option 3 ID : **4410095807675**
Option 4 ID : **4410095807676**
Status : **Answered**
Chosen Option : **C**

Q.34 If the specific speed of a turbine is high, it indicates that the turbine:

Ans
✗ A. Has a relatively small runner diameter and narrow flow path
✓ B. Operates with high discharge and low operating head
✗ C. Operates with low discharge and high operating head
✗ D. Is primarily designed as an impulse-type hydraulic turbine

Question ID : **4410091455954**
Option 1 ID : **4410095752172**
Option 2 ID : **4410095752171**
Option 3 ID : **4410095752170**
Option 4 ID : **4410095752173**
Status : **Not Answered**
Chosen Option : **--**

Q.35 Which of the following pairs of metals crystallise in the hexagonal crystal system?

Ans
✗ A. Iron and Tungsten
✗ B. Lead and Tin
✗ C. Copper and Nickel
✓ D. Magnesium and Zinc

Question ID : **4410091470891**
Option 1 ID : **4410095811509**
Option 2 ID : **4410095811510**
Option 3 ID : **4410095811507**
Option 4 ID : **4410095811508**
Status : **Not Answered**
Chosen Option : **--**

Q.36 The Electron Beam Machining (EBM) process must be carried out in a vacuum primarily to:

Ans
✗ A. Maintain electrical insulation between system components
✓ B. Prevent scattering of electrons by surrounding air molecules
✗ C. Prevent oxidation of the workpiece surface during machining
✗ D. Reduce unwanted heat losses from the machining chamber

Question ID : **4410091482727**
Option 1 ID : **4410095857887**
Option 2 ID : **4410095857886**
Option 3 ID : **4410095857885**
Option 4 ID : **4410095857888**
Status : **Answered**
Chosen Option : **B**

Q.37 For laminar flow in a circular tube, the velocity distribution is:

Ans
✔ A. Parabolic
✘ B. Exponential
✘ C. Uniform
✘ D. Linear

Question ID : **4410091458525**
Option 1 ID : **4410095762355**
Option 2 ID : **4410095762353**
Option 3 ID : **4410095762354**
Option 4 ID : **4410095762352**
Status : **Answered**
Chosen Option : **A**

Q.38 The correct relation between the tolerance unit i and the part diameter D (in mm) is _____.

Ans
✔ A. $i = 0.453\sqrt[3]{D} + 0.001D$ microns
✘ B. $i = 0.0453\sqrt{D} + 0.001D$ microns
✘ C. $i = 0.0453\sqrt[3]{D} + 0.001D$ microns
✘ D. $i = 0.453\sqrt{D} + 0.01D$ microns

Question ID : **4410091495945**
Option 1 ID : **4410095909075**
Option 2 ID : **4410095909076**
Option 3 ID : **4410095909074**
Option 4 ID : **4410095909073**
Status : **Answered**
Chosen Option : **C**

Q.39 A system contains 1 mole of an ideal gas. If molecular velocity distribution changes but macroscopic variables stay the same, then:

Ans
✘ A. Internal energy changes
✘ B. Temperature changes
✔ C. Macroscopic state remains unchanged
✘ D. Pressure changes but temperature stays same

Question ID : **4410091460478**
Option 1 ID : **4410095770093**
Option 2 ID : **4410095770094**
Option 3 ID : **4410095770095**
Option 4 ID : **4410095770096**
Status : **Not Answered**
Chosen Option : **--**

Q.40 **Which of the following statements about compressibility is correct?**

Ans
✗ A. Compressibility is independent of temperature.

✗ B. Compressibility decreases with increasing pressure for all substances.

✗ C. Compressibility is always positive for all substances.

✓ D. Compressibility is a measure of the change in volume of a substance with respect to pressure.

Question ID : **4410091459741**
Option 1 ID : **4410095767133**
Option 2 ID : **4410095767134**
Option 3 ID : **4410095767132**
Option 4 ID : **4410095767131**
Status : **Answered**
Chosen Option : **C**

Q.41 **In a syphon, flow continues from the higher reservoir to the lower reservoir because:**

Ans
✗ A. Absolute pressure on the reservoirs maintains the flow

✗ B. The potential head at the exit exceeds friction losses

✓ C. The pressure at the top of the syphon is negative (below atmospheric)

✗ D. The pressure at the top of the syphon is more than five atmospheric pressure

Question ID : **4410091453325**
Option 1 ID : **4410095741588**
Option 2 ID : **4410095741587**
Option 3 ID : **4410095741586**
Option 4 ID : **4410095741585**
Status : **Not Answered**
Chosen Option : **--**

Q.42 **In a counterflow heat exchanger, the temperature differences at the two ends are $\Delta T_1 = (T_1h - T_2c)$ and $\Delta T_2 = (T_2h - T_1c)$. What is the formula for the Logarithmic Mean Temperature Difference (LMTD)?**

Ans
✗ A. $\Delta T_1 - \Delta T_2$

✗ B. $\Delta T_1 + \Delta T_2$

✓ C. $(\Delta T_1 - \Delta T_2) / \ln(\Delta T_1 / \Delta T_2)$

✗ D. $\ln(\Delta T_1 / \Delta T_2)$

Question ID : **4410091458807**
Option 1 ID : **4410095763384**
Option 2 ID : **4410095763387**
Option 3 ID : **4410095763385**
Option 4 ID : **4410095763386**
Status : **Answered**
Chosen Option : **C**

Q.43 **The method by which hammer blow in locomotives can be reduced is:**

Ans
- ✔ A. counterbalancing wheels
- ✘ B. increasing flywheel size
- ✘ C. crankshaft shortening
- ✘ D. turbocharging

Question ID : **441009270085**
Option 1 ID : **4410091049363**
Option 2 ID : **4410091049364**
Option 3 ID : **4410091049365**
Option 4 ID : **4410091049362**
Status : **Not Answered**
Chosen Option : **--**

Q.44 **For laminar forced convection over a flat plate, the thermal boundary layer thickness increases with:**

Ans
- ✘ A. Decreasing fluid velocity
- ✔ B. Increasing distance from the leading edge
- ✘ C. Increasing fluid velocity
- ✘ D. Decreasing distance from the leading edge

Question ID : **4410091458721**
Option 1 ID : **4410095763043**
Option 2 ID : **4410095763041**
Option 3 ID : **4410095763042**
Option 4 ID : **4410095763040**
Status : **Answered**
Chosen Option : **B**

Q.45 **For a given material and thickness, increasing punch speed during piercing generally:**

Ans
- ✘ A. decreases the shear plane angle of fracture
- ✔ B. increases tool temperature and accelerates wear
- ✘ C. produces negligible change in cutting conditions
- ✘ D. improves edge quality due to lower strain rate

Question ID : **4410091478036**
Option 1 ID : **4410095839479**
Option 2 ID : **4410095839481**
Option 3 ID : **4410095839482**
Option 4 ID : **4410095839480**
Status : **Not Answered**
Chosen Option : **--**

Q.46 **For a perfectly plastic material with no strain hardening, the engineering stress–strain diagram will show:**

Ans
- ✔ A. Linear elastic region followed by constant yield stress
- ✘ B. Parabolic-shaped curve occurring immediately after yielding
- ✘ C. Sudden material fracture right after the elastic limit
- ✘ D. Rising stress curve after yield due to geometric softening

Question ID : **4410091471133**
Option 1 ID : **4410095812463**
Option 2 ID : **4410095812464**
Option 3 ID : **4410095812465**
Option 4 ID : **4410095812466**
Status : **Answered**
Chosen Option : **A**

Q.47 **A thin plate is moving in still atmospheric air at a velocity of 5 m/s. The length of the plate is 0.6 m and width is 0.5 m. What will be the nature of flow over the plate? (Take density of air as 1.24 kg/m^3 and kinematic viscosity 0.15 stokes.)**

Ans
- ✘ A. In transition range over the entire length of the plate
- ✘ B. Turbulent flow over the entire length of the plate
- ✔ C. Laminar flow over the entire length of the plate
- ✘ D. Combination of laminar and turbulent flow over the plate

Question ID : **441009336750**
Option 1 ID : **4410091313026**
Option 2 ID : **4410091313025**
Option 3 ID : **4410091313024**
Option 4 ID : **4410091313027**
Status : **Answered**
Chosen Option : **D**

Q.48 **What is the primary function of the expansion valve in a vapour compression refrigeration system?**

Ans
- ✘ A. Increase the refrigerant pressure
- ✔ B. Decrease the refrigerant pressure
- ✘ C. Increase the refrigerant temperature
- ✘ D. Maintain a constant refrigerant flow

Question ID : **4410091463429**
Option 1 ID : **4410095781850**
Option 2 ID : **4410095781851**
Option 3 ID : **4410095781852**
Option 4 ID : **4410095781853**
Status : **Answered**
Chosen Option : **A**

Q.49 The diameter of Mohr's circle for pure torsion is equal to _____.

Ans
✗ A. The maximum shear stress
✗ B. Half the maximum shear stress
✓ C. Twice the maximum shear stress
✗ D. Twice the maximum normal stress

Question ID : **4410091462248**
Option 1 ID : **4410095777095**
Option 2 ID : **4410095777097**
Option 3 ID : **4410095777096**
Option 4 ID : **4410095777094**
Status : **Answered**
Chosen Option : **C**

Q.50 The main objective of Phase 1 in the two-phase simplex method is:

Ans
✗ A. To optimise original objective function
✓ B. To minimise sum of all artificial variables
✗ C. To check multiple optimal solution
✗ D. To eliminate all surplus variables from basis

Question ID : **4410091498022**
Option 1 ID : **4410095917148**
Option 2 ID : **4410095917149**
Option 3 ID : **4410095917151**
Option 4 ID : **4410095917150**
Status : **Answered**
Chosen Option : **C**

Q.51 For a lightly damped system ($\zeta < 0.1$), the logarithmic decrement δ is approximately _____.

Ans
✗ A. equal to $\pi\zeta$
✓ B. equal to $2\pi\zeta$
✗ C. equal to $\sqrt{\zeta}$
✗ D. equal to ζ

Question ID : **4410091472296**
Option 1 ID : **4410095817079**
Option 2 ID : **4410095817078**
Option 3 ID : **4410095817080**
Option 4 ID : **4410095817077**
Status : **Not Answered**
Chosen Option : **--**

Q.52 In long columns subjected to a central load, the reason for assuming that the direct stress is very small compared to the bending stress is to:

Ans
✗ A. treat compression as the primary failure mode
✓ B. treat buckling as the primary failure mode
✗ C. include the effects of eccentric loading
✗ D. account for material imperfections

Question ID : **44100983479**
Option 1 ID : **441009331674**
Option 2 ID : **441009331676**
Option 3 ID : **441009331677**
Option 4 ID : **441009331675**
Status : **Answered**
Chosen Option : **B**

Q.53 In which among the following fits hole diameter is always greater than shaft diameter?

Ans
✗ A. Press fit
✓ B. Clearance fit
✗ C. Transition fit
✗ D. Interference fit

Question ID : **4410091514780**
Option 1 ID : **4410095982551**
Option 2 ID : **4410095982548**
Option 3 ID : **4410095982550**
Option 4 ID : **4410095982549**
Status : **Answered**
Chosen Option : **B**

Q.54 What is the shape of the bending moment diagram in a simply supported beam with a uniformly distributed load (UDL)?

Ans
✗ A. Triangle
✗ B. Rectangle
✓ C. Parabola
✗ D. Straight line

Question ID : **4410091460366**
Option 1 ID : **4410095769650**
Option 2 ID : **4410095769649**
Option 3 ID : **4410095769651**
Option 4 ID : **4410095769652**
Status : **Answered**
Chosen Option : **C**

Q.55 A bevel protractor is used for angular measurement in metrology. Which type of bevel protractor has vernier scale as well as an acute angle attachment?

Ans
- ✔ A. Type A
- ✘ B. Type B
- ✘ C. Type D
- ✘ D. Type C

Question ID : **4410091503471**
Option 1 ID : **4410095938080**
Option 2 ID : **4410095938081**
Option 3 ID : **4410095938083**
Option 4 ID : **4410095938082**
Status : **Not Answered**
Chosen Option : **--**

Q.56 When comparing the maintenance schedule, the key advantage of a centrifugal compressor over a reciprocating compressor is:

Ans
- ✘ A. It has no wearing parts
- ✔ B. Its maintenance intervals are longer and it has fewer consumable parts
- ✘ C. It does not require any valve maintenance
- ✘ D. It can be maintained without shutting down the process

Question ID : **4410091463545**
Option 1 ID : **4410095782307**
Option 2 ID : **4410095782308**
Option 3 ID : **4410095782306**
Option 4 ID : **4410095782309**
Status : **Not Answered**
Chosen Option : **--**

Q.57 The Dynamic Magnification Factor (DMF) in forced vibration of a damped system is defined as _____.

Ans
- ✘ A. ratio of natural frequency to frequency of excitation
- ✘ B. ratio of maximum to minimum displacement
- ✘ C. ratio of damping coefficient to critical damping
- ✔ D. ratio of amplitude of forced vibration to static deflection

Question ID : **4410091471828**
Option 1 ID : **4410095815193**
Option 2 ID : **4410095815194**
Option 3 ID : **4410095815191**
Option 4 ID : **4410095815192**
Status : **Not Answered**
Chosen Option : **--**

Q.58 Which of the following correctly lists the typical steps in a solid-state welding process?

Ans
✔ A. Surface preparation followed by pressure and diffusion bonding
✘ B. Heating and melting followed by cooling and solidification
✘ C. Melting and fusion followed by recrystallisation and cooling
✘ D. Flux addition followed by arc initiation and solidification

Question ID : **4410091492750**
Option 1 ID : **4410095896682**
Option 2 ID : **4410095896681**
Option 3 ID : **4410095896684**
Option 4 ID : **4410095896683**
Status : **Answered**
Chosen Option : **A**

Q.59 The mean effective pressure (MEP) of a dual cycle increases when:

Ans
✔ A. The cut-off ratio is increased moderately
✘ B. The amount of heat rejected is increased
✘ C. The constant-volume heat input is reduced
✘ D. The compression ratio is decreased slightly

Question ID : **4410091448153**
Option 1 ID : **4410095721096**
Option 2 ID : **4410095721099**
Option 3 ID : **4410095721098**
Option 4 ID : **4410095721097**
Status : **Not Answered**
Chosen Option : **--**

Q.60 The degree of reaction in a hydraulic turbine is defined as the ratio of:

Ans
✘ A. Head recovered by the draft tube to the total head supplied
✘ B. Kinetic energy converted in the runner to the total energy available
✔ C. Pressure energy drop in the runner to the overall energy reduction
✘ D. Kinetic energy present at inlet to the kinetic energy at outlet

Question ID : **4410091455923**
Option 1 ID : **4410095752049**
Option 2 ID : **4410095752047**
Option 3 ID : **4410095752046**
Option 4 ID : **4410095752048**
Status : **Not Answered**
Chosen Option : **--**

Q.61 In place of R chart, which among the following is used for larger group size?

Ans
✔ A. S- Chart
✘ B. P- Chart
✘ C. U- Chart
✘ D. C- Chart

Question ID : **4410091490981**
Option 1 ID : **4410095889780**
Option 2 ID : **4410095889778**
Option 3 ID : **4410095889777**
Option 4 ID : **4410095889779**
Status : **Not Answered**
Chosen Option : **--**

Q.62 The periodic inspection of equipment and machinery to uncover conditions that can lead to breakdown comes under _____.

Ans
✔ A. Preventive maintenance
✘ B. Breakdown maintenance
✘ C. Scheduled maintenance
✘ D. Predictive maintenance

Question ID : **4410091494562**
Option 1 ID : **4410095903787**
Option 2 ID : **4410095903784**
Option 3 ID : **4410095903786**
Option 4 ID : **4410095903785**
Status : **Answered**
Chosen Option : **A**

Q.63 In a transportation problem with 5 supply points and 6 demand points, the number of constraints required will be:

Ans
✘ A. 10
✘ B. 12
✘ C. 30
✔ D. 11

Question ID : **4410091498396**
Option 1 ID : **4410095918603**
Option 2 ID : **4410095918606**
Option 3 ID : **4410095918605**
Option 4 ID : **4410095918604**
Status : **Answered**
Chosen Option : **A**

Q.64 **In a n X n matrix assignment problem to be solved by using Hungarian method, what will the total number of assignments be?**

Ans
✗ A. 2n-1
✓ B. n
✗ C. (n+1)/2
✗ D. 2n

Question ID : **4410091497783**
Option 1 ID : **4410095916146**
Option 2 ID : **4410095916145**
Option 3 ID : **4410095916147**
Option 4 ID : **4410095916144**
Status : **Answered**
Chosen Option : **B**

Q.65 **In a twin-engine aircraft, the two propellers spin at the same speed but in opposite directions. When the pilot raises the nose of the aircraft, what happens to the overall gyroscopic effect?**

Ans
✗ A. The gyroscopic effect is halved but still present in the roll axis.
✓ B. The gyroscopic effect from both engines cancels out, resulting in no net effect.
✗ C. The gyroscopic effect is doubled compared to a single-engine aircraft.
✗ D. The gyroscopic effect causes a violent yawing motion.

Question ID : **4410091470966**
Option 1 ID : **4410095811810**
Option 2 ID : **4410095811807**
Option 3 ID : **4410095811808**
Option 4 ID : **4410095811809**
Status : **Not Answered**
Chosen Option : **--**

Q.66 **The method used when non-isometric lines or their ends lie in isometric planes is _____.**

Ans
✓ A. Box method
✗ B. Co-ordinate method
✗ C. Offset method
✗ D. Oblong method

Question ID : **4410091514730**
Option 1 ID : **4410095982355**
Option 2 ID : **4410095982353**
Option 3 ID : **4410095982352**
Option 4 ID : **4410095982354**
Status : **Not Answered**
Chosen Option : **--**

Q.67 In velocity analysis of a four-bar mechanism, how many instantaneous centres exist?

Ans
✗ A. 4
✗ B. 3
✓ C. 6
✗ D. 2

Question ID : **4410091471804**
Option 1 ID : **4410095815097**
Option 2 ID : **4410095815096**
Option 3 ID : **4410095815098**
Option 4 ID : **4410095815095**
Status : **Answered**
Chosen Option : **C**

Q.68 For a column with effective length L_{eff} = 3m and least radius of gyration r = 30 mm, its slenderness ratio is _____.

Ans
✗ A. 150
✗ B. 200
✓ C. 100
✗ D. 50

Question ID : **4410091462204**
Option 1 ID : **4410095776920**
Option 2 ID : **4410095776921**
Option 3 ID : **4410095776919**
Option 4 ID : **4410095776918**
Status : **Answered**
Chosen Option : **C**

Q.69 What does the pressure on a horizontal surface submerged in a liquid depend on?

Ans
✓ A. Density and depth
✗ B. Volume of liquid
✗ C. Shape of container
✗ D. Surface area

Question ID : **441009260939**
Option 1 ID : **4410091017154**
Option 2 ID : **4410091017153**
Option 3 ID : **4410091017156**
Option 4 ID : **4410091017155**
Status : **Answered**
Chosen Option : **A**

Q.70 According to Lami's theorem, for three concurrent forces P, Q, R, acting at a point where A, B, C are the angles opposite to these forces, respectively, in equilibrium:

Ans
✗ A. P+Q+R=0

✓ B. P / sin A = Q/ sin B = R /sin C

✗ C. P sinA=Q sinB=R sinC

✗ D. P / cos A = Q / cos B = R / cos C

Question ID : **4410091444913**
Option 1 ID : **4410095708244**
Option 2 ID : **4410095708241**
Option 3 ID : **4410095708243**
Option 4 ID : **4410095708242**
Status : **Answered**
Chosen Option : **B**

Q.71 In gas welding, the control of the flame type and size is achieved by regulating:

Ans
✗ A. The distance maintained between the flame and weld pool

✓ B. The gas pressures and flow rates of oxygen and acetylene

✗ C. The inclination of the torch with respect to the workpiece

✗ D. The diameter of the welding nozzle and tip opening

Question ID : **4410091492955**
Option 1 ID : **4410095897508**
Option 2 ID : **4410095897506**
Option 3 ID : **4410095897507**
Option 4 ID : **4410095897505**
Status : **Answered**
Chosen Option : **B**

Q.72 For which of the following is the 3-2-1 principle used in jigs and fixtures?

Ans
✗ A. To guide the cutting tool during operation

✓ B. To restrict the degrees of freedom of a workpiece

✗ C. To increase the number of components machined at a time

✗ D. To reduce the manufacturing cost of a part

Question ID : **4410091501180**
Option 1 ID : **4410095929129**
Option 2 ID : **4410095929130**
Option 3 ID : **4410095929131**
Option 4 ID : **4410095929128**
Status : **Answered**
Chosen Option : **A**

Q.73 **In a locomotive, partial balancing is done primarily to reduce _____.**

Ans
- ✗ A. Wheel slip during motion
- ✗ B. Pressure on cylinder walls
- ✓ C. Hammer blow on rails
- ✗ D. Inertia of reciprocating parts

Question ID : **4410091470103**
Option 1 ID : **4410095808341**
Option 2 ID : **4410095808338**
Option 3 ID : **4410095808339**
Option 4 ID : **4410095808340**
Status : **Not Answered**
Chosen Option : **--**

Q.74 **When applying Rayleigh's method to determine the drag force F, which dimensions are considered?**

Ans
- ✗ A. Mass (M), Length (L), Time (T), Acceleration (A)
- ✓ B. Mass (M), Length (L), Time (T)
- ✗ C. Mass (M), Length (L), Time (T), Velocity (V)
- ✗ D. Mass (M), Length (L), Time (T), Force (F)

Question ID : **4410091455474**
Option 1 ID : **4410095750206**
Option 2 ID : **4410095750203**
Option 3 ID : **4410095750205**
Option 4 ID : **4410095750204**
Status : **Answered**
Chosen Option : **B**

Q.75 **For a thin sheet under pure bending, the bending stress σ is related to the radius of curvature R as _____ (where y = distance from neutral axis and E = modulus of elasticity).**

Ans
- ✗ A. $\sigma = R / E$
- ✗ B. $\sigma = ER$
- ✓ C. $\sigma = Ey / R$
- ✗ D. $\sigma = E / R$

Question ID : **4410091462134**
Option 1 ID : **4410095776637**
Option 2 ID : **4410095776636**
Option 3 ID : **4410095776635**
Option 4 ID : **4410095776634**
Status : **Answered**
Chosen Option : **C**

Q.76 **Which bearing can carry the highest equivalent dynamic load for its size?**

Ans
- ✔ A. Tapered roller bearing
- ✘ B. Deep groove bearing
- ✘ C. Ball bearing
- ✘ D. Needle bearing

Question ID : **4410091172518**
Option 1 ID : **4410094624244**
Option 2 ID : **4410094624243**
Option 3 ID : **4410094624242**
Option 4 ID : **4410094624245**
Status : **Not Answered**
Chosen Option : **--**

Q.77 **A certain non ideal gas has a compressibility factor Z=0.85. Which of the following is a valid conclusion from this value?**

Ans
- ✔ A. The gas experiences net attractive forces and occupies less volume than the ideal gas equation.
- ✘ B. Gas expands beyond ideal prediction under given conditions.
- ✘ C. Gas shows negligible attractions and behaves nearly ideal.
- ✘ D. Ideal gas law overpredicts volume by 15 per cent.

Question ID : **4410091459993**
Option 1 ID : **4410095768163**
Option 2 ID : **4410095768161**
Option 3 ID : **4410095768162**
Option 4 ID : **4410095768164**
Status : **Answered**
Chosen Option : **B**

Q.78 **In which of the following types of turbines is the lower end of the shaft made larger, known as 'hub' or 'boss'?**

Ans
- ✘ A. Francis turbine
- ✘ B. Modern Francis turbine
- ✔ C. Kaplan turbine
- ✘ D. Pelton turbine

Question ID : **441009328594**
Option 1 ID : **4410091280839**
Option 2 ID : **4410091280841**
Option 3 ID : **4410091280840**
Option 4 ID : **4410091280838**
Status : **Not Answered**
Chosen Option : **--**

Q.79 **A leaf spring acts as a _____.**

Ans

✗ A. Beam in tension

✓ B. Beam in bending

✗ C. Column in compression

✗ D. Shaft in torsion

Question ID : **4410091478715**
Option 1 ID : **4410095842182**
Option 2 ID : **4410095842183**
Option 3 ID : **4410095842185**
Option 4 ID : **4410095842184**
Status : **Answered**
Chosen Option : **B**

Q.80 **In an air washer, operating as a cooling and humidifying device, the air leaving the washer is at:**

Ans

✗ A. Constant dew-point temperature

✗ B. Constant dry-bulb temperature

✗ C. Constant humidity ratio

✓ D. Constant wet-bulb temperature

Question ID : **4410091448267**
Option 1 ID : **4410095721559**
Option 2 ID : **4410095721556**
Option 3 ID : **4410095721557**
Option 4 ID : **4410095721558**
Status : **Not Answered**
Chosen Option : **--**

Q.81 **Which of the following views should be drawn first when the axis of a solid is perpendicular to the vertical plane (VP)?**

Ans

✗ A. Side view

✓ B. Front view

✗ C. Rare view

✗ D. Top view

Question ID : **4410091514682**
Option 1 ID : **4410095982166**
Option 2 ID : **4410095982165**
Option 3 ID : **4410095982167**
Option 4 ID : **4410095982164**
Status : **Not Answered**
Chosen Option : **--**

Q.82 In blanking, increasing clearance between punch and die tends to:

Ans
✗ A. produce smoother edges
✗ B. reduce burr height
✓ C. increase rollover and burr
✗ D. eliminate shear zone

Question ID : **4410091478020**
Option 1 ID : **4410095839408**
Option 2 ID : **4410095839407**
Option 3 ID : **4410095839409**
Option 4 ID : **4410095839410**
Status : **Not Answered**
Chosen Option : **--**

Q.83 In which of the following analyses should symmetry in application of boundary conditions be avoided?

Ans
✗ A. Non-linear static analysis
✗ B. Linear static analysis
✗ C. Thermal analysis
✓ D. Modal analysis

Question ID : **4410091514144**
Option 1 ID : **4410095980505**
Option 2 ID : **4410095980504**
Option 3 ID : **4410095980503**
Option 4 ID : **4410095980502**
Status : **Answered**
Chosen Option : **A**

Q.84 Which assumption is NOT valid in Dunkerley's method for finding the fundamental frequency of a multi-degree-of-freedom system?

Ans
✗ A. Each rotor acts independently
✗ B. Shaft mass is negligible
✗ C. Deflection is proportional to load
✓ D. Shaft stiffness varies with position

Question ID : **4410091472255**
Option 1 ID : **4410095816919**
Option 2 ID : **4410095816917**
Option 3 ID : **4410095816918**
Option 4 ID : **4410095816920**
Status : **Not Answered**
Chosen Option : **--**

Q.85 **Which of the following is a practical method to increase tool life in chip-removal machining?**

Ans
- ✔ A. Apply suitable coolant or lubrication to lower cutting friction
- ✘ B. Raise feed rate to the maximum possible for given material
- ✘ C. Use tool material that has reduced hot hardness property
- ✘ D. Increase cutting speed aggressively during each operation

Question ID : **4410091482614**
Option 1 ID : **4410095857449**
Option 2 ID : **4410095857450**
Option 3 ID : **4410095857448**
Option 4 ID : **4410095857447**
Status : **Answered**
Chosen Option : **A**

Q.86 **Which of the following mechanical pressure gauges is most suitable for measuring high-pressure steam systems?**

Ans
- ✘ A. Capsule gauge
- ✔ B. Bourdon tube gauge
- ✘ C. Diaphragm gauge
- ✘ D. Bellows gauge

Question ID : **4410091454769**
Option 1 ID : **4410095747384**
Option 2 ID : **4410095747381**
Option 3 ID : **4410095747383**
Option 4 ID : **4410095747382**
Status : **Not Answered**
Chosen Option : **--**

Q.87 **Thermoplastics differ from thermosetting plastics mainly in their:**

Ans
- ✘ A. Tensile strength and modulus values
- ✔ B. Reversibility of softening upon heating
- ✘ C. Type of atomic bonding
- ✘ D. Presence of crystalline regions

Question ID : **4410091470988**
Option 1 ID : **4410095811894**
Option 2 ID : **4410095811892**
Option 3 ID : **4410095811891**
Option 4 ID : **4410095811893**
Status : **Answered**
Chosen Option : **B**

Q.88 The nodal points in finite element analysis are connected by unique _____.

Ans
✗ A. Surface
✓ B. Shape
✗ C. Matrix
✗ D. Eigen values

Question ID : **4410091511454**
Option 1 ID : **4410095969863**
Option 2 ID : **4410095969861**
Option 3 ID : **4410095969864**
Option 4 ID : **4410095969862**
Status : **Answered**
Chosen Option : **D**

Q.89 Which of the following is used to interpolate displacements in beam elements?

Ans
✗ A. Shape factors
✗ B. Shape elements
✗ C. Shape parameters
✓ D. Shape functions

Question ID : **4410091514138**
Option 1 ID : **4410095980479**
Option 2 ID : **4410095980480**
Option 3 ID : **4410095980478**
Option 4 ID : **4410095980481**
Status : **Not Answered**
Chosen Option : **--**

Q.90 Operator activity chart is also known as _____.

Ans
✗ A. Flow diagram
✗ B. Operation process chart
✗ C. Flow process chart
✓ D. Two-handed process chart

Question ID : **4410091491374**
Option 1 ID : **4410095891285**
Option 2 ID : **4410095891283**
Option 3 ID : **4410095891282**
Option 4 ID : **4410095891284**
Status : **Not Answered**
Chosen Option : **--**

Q.91 What is the correct equation for determinacy in case of perfectly constrained pin-jointed plane frame with (m = members, j = joints, and r = reactions)?

Ans
✗ A. m+r<2j
✗ B. m=j
✗ C. m+r>2j
✓ D. m+r=2j

Question ID : **4410091452875**
Option 1 ID : **4410095739828**
Option 2 ID : **4410095739829**
Option 3 ID : **4410095739827**
Option 4 ID : **4410095739826**
Status : **Answered**
Chosen Option : **D**

Q.92 The inclination of the line of action with the common tangent to the pitch circles of mating gears is known as _____.

Ans
✗ A. Contact angle
✗ B. Base circle angle
✓ C. Pressure angle
✗ D. Helix angle

Question ID : **4410091470198**
Option 1 ID : **4410095808723**
Option 2 ID : **4410095808725**
Option 3 ID : **4410095808724**
Option 4 ID : **4410095808722**
Status : **Not Answered**
Chosen Option : **--**

Q.93 For maximum efficiency in a Francis turbine, the blade angle at the outlet is designed so that:

Ans
✗ A. Relative velocity of water at outlet is directed along the radial line
✗ B. Absolute velocity of water at outlet is completely equal to zero value
✗ C. Absolute velocity of water at outlet is tangential to the runner blades
✓ D. Absolute velocity of water at outlet is directed along the radial line

Question ID : **4410091455774**
Option 1 ID : **4410095751432**
Option 2 ID : **4410095751434**
Option 3 ID : **4410095751431**
Option 4 ID : **4410095751433**
Status : **Marked For Review**
Chosen Option : **D**

Q.94 Which of the following is the disadvantage of reheating?

Ans
✗ A. There is an increase in the nozzle and blade efficiencies.

✓ B. The increase in thermal efficiency is not appreciable in comparison to the expenditure incurred in reheating.

✗ C. There is an increased output of the turbine.

✗ D. There is an improvement in the thermal efficiency of the turbines.

Question ID : **441009334763**
Option 1 ID : **4410091305008**
Option 2 ID : **4410091305009**
Option 3 ID : **4410091305006**
Option 4 ID : **4410091305007**
Status : **Not Answered**
Chosen Option : **--**

Q.95 The Froude Model Law is applied when:

Ans
✗ A. Inclined forces are dominant

✓ B. Gravitational forces are dominant

✗ C. Perpendicular forces are dominant

✗ D. Parallel forces are dominant

Question ID : **4410091453211**
Option 1 ID : **4410095741135**
Option 2 ID : **4410095741133**
Option 3 ID : **4410095741134**
Option 4 ID : **4410095741132**
Status : **Not Answered**
Chosen Option : **--**

Q.96 What is the sufficient number of cycles to define endurance limit of a ferrous material?

Ans
✗ A. 10^5 cycles

✗ B. 10^8 cycles

✓ C. 10^6 cycles

✗ D. 10^3 cycles

Question ID : **441009979577**
Option 1 ID : **4410093870825**
Option 2 ID : **4410093870826**
Option 3 ID : **4410093870823**
Option 4 ID : **4410093870824**
Status : **Answered**
Chosen Option : **C**

Q.97 **In the method of joints for analysis of trusses and frames starts from the joint having _____.**

Ans

✔ A. two unknown forces

✘ B. any number of unknown forces

✘ C. one unknown force

✘ D. three unknown forces

Question ID : **4410091444722**
Option 1 ID : **4410095707506**
Option 2 ID : **4410095707508**
Option 3 ID : **4410095707505**
Option 4 ID : **4410095707507**
Status : **Answered**
Chosen Option : **C**

Q.98 **Heat flows through a composite cylindrical wall with two layers. If the outer layer has much higher thermal conductivity than the inner layer (k2 ≫ k1), which statement is correct?**

Ans

✘ A. Temperature drop is equal in both layers

✘ B. Heat transfer rate becomes zero

✘ C. Most temperature drop occurs across outer layer

✔ D. Most temperature drop occurs across inner layer

Question ID : **4410091454874**
Option 1 ID : **4410095747803**
Option 2 ID : **4410095747804**
Option 3 ID : **4410095747802**
Option 4 ID : **4410095747801**
Status : **Answered**
Chosen Option : **C**

Q.99 **What is the key assumption for a 2-D frame element in finite element analysis?**

Ans

✘ A. The element has zero thickness

✘ B. The element is limited to transmitting only axial loads

✘ C. The element is not capable of deforming in the transverse direction

✔ D. The element is assumed to be a straight bar with a defined cross-section that can undergo both axial and transverse deformations

Question ID : **4410091514156**
Option 1 ID : **4410095980550**
Option 2 ID : **4410095980553**
Option 3 ID : **4410095980551**
Option 4 ID : **4410095980552**
Status : **Answered**
Chosen Option : **D**

Q.100 How many surfaces does a soap bubble have?

Ans
- ✗ A. Four
- ✗ B. Three
- ✓ C. Two
- ✗ D. One

Question ID : **441009262991**
Option 1 ID : **4410091024513**
Option 2 ID : **4410091024512**
Option 3 ID : **4410091024511**
Option 4 ID : **4410091024510**
Status : **Answered**
Chosen Option : **C**

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