HRRL Engineer

Previous Year Paper
(Electrical)
15 Apr, 2025 Shift 1

Participant ID	
Participant Name	
Test Center Name	
Test Date	15/04/2025
Test Time	9:00 AM - 11:00 AM
Subject	Engineer Electrical

Section : **Intellectual Potential Test**

Q.1 A paper is folded and cut as shown below. How will it appear when unfolded?

Ans

✗ 1.

✗ 2.

✔ 3.

✗ 4.
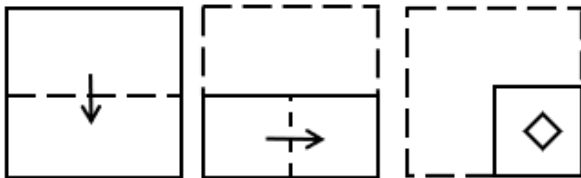
Question ID : **44100953317**
Option 1 ID : **441009228026**
Option 2 ID : **441009228023**
Option 3 ID : **441009228025**
Option 4 ID : **441009228024**
Status : **Answered**
Chosen Option : **3**

Q.2 Figure A is related to figure B following a certain pattern. Select the pair from the options, in which the two figures are related following the same pattern.
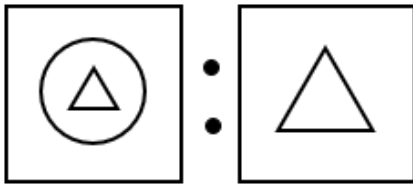
(A) : (B)

Ans

✗ 1. (A) : (B)
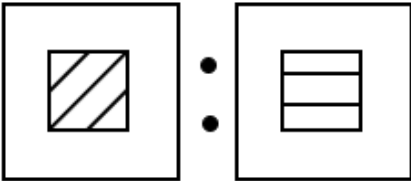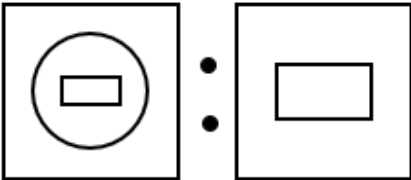
✔ 2. (A) : (B)
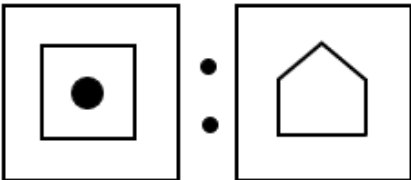
✗ 3. (A) : (B)
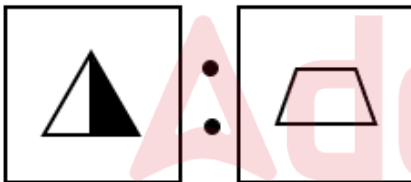
✗ 4. (A) : (B)

Question ID : **44100957997**
Option 1 ID : **441009234380**
Option 2 ID : **441009234379**
Option 3 ID : **441009234378**
Option 4 ID : **441009234381**
Status : **Answered**
Chosen Option : **2**

Q.3 Read the given statements and conclusions carefully. Assuming that the information given in the statements is true, even if it appears to be at variance with commonly known facts, decide which of the given conclusion(s) logically follow(s) from the statements.

Statements:
All kittens are carrots.
All kittens are trees.
All kittens are plumbers.

Conclusions:
(I): All carrots are plumbers.
(II): Some plumbers are trees.

Ans ✗ 1. Neither conclusion (I) nor (II) follows.

✗ 2. Only conclusion (I) follows.

✗ 3. Both conclusions (I) and (II) follow.

✓ 4. Only conclusion (II) follows.

Question ID : **441009108820**
Option 1 ID : **441009433097**
Option 2 ID : **441009433095**
Option 3 ID : **441009433098**
Option 4 ID : **441009433096**
Status : **Answered**
Chosen Option : **4**

Q.4 Identify the figure from the given options, which when put in place of the question mark (?) will logically complete the series?
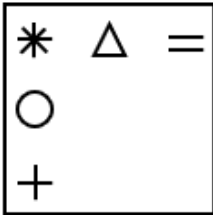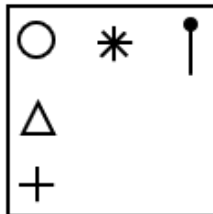

Ans

✗ 1.

✔ 2.

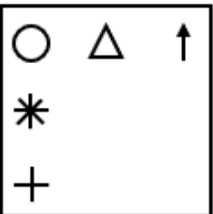✗ 3.

✗ 4.
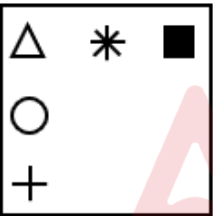
Question ID : **44100957309**
Option 1 ID : **441009234003**
Option 2 ID : **441009234002**
Option 3 ID : **441009234004**
Option 4 ID : **441009234001**
Status : **Answered**
Chosen Option : **4**

Q.5 MOLECU is related to BDATRJ in a certain way based on the English alphabetical order. In the same way, LIQUID is related to AXFJXS. To which of the given options is MATRIX related, following the same logic?

Ans ✖ 1. BPIHYM

✖ 2. BQJGXM

✖ 3. BPJHXM

✔ 4. BPIGXM

Question ID : **44100964441**
Option 1 ID : **441009256747**
Option 2 ID : **441009256748**
Option 3 ID : **441009256749**
Option 4 ID : **441009256750**
Status : **Answered**
Chosen Option : **4**

Q.6 यह प्रश्न नीचे दी गई पाँच, तीन-अंकीय संख्याओं पर आधारित है।

(बाएं) 372 938 195 417 693 (दाएं)

(उदाहरण: 697 - पहला अंक = 6, दूसरा अंक = 9 और तीसरा अंक = 7)
(नोट: सभी संक्रियाएं बाएं से दाएं की जानी हैं।)

यदि सबसे बड़ी संख्या के दूसरे अंक को सबसे छोटी संख्या के तीसरे अंक में जोड़ा जाए, तो परिणाम के रूप में कितना प्राप्त होगा?

Ans ✔ 1. 8

✖ 2. 9

✖ 3. 12

✖ 4. 15

Question ID : **44100919851**
Option 1 ID : **44100979130**
Option 2 ID : **44100979128**
Option 3 ID : **44100979129**
Option 4 ID : **44100979127**
Status : **Answered**
Chosen Option : **1**

Q.7 प्रबीन बिंदु A से शुरू करते हुए दक्षिण की ओर 12 km ड्राइव करता है। फिर वह दाएं मुड़ता है और 32 km ड्राइव करता है। फिर दाएं मुड़ता है और 51 km ड्राइव करता है। फिर दाएं मुड़ता है और 53 km ड्राइव करता है। वह अंतिम बार दाएं मुड़ता है और 39 km ड्राइव करके बिंदु P पर रुक जाता है। बिंदु A पर वापस पहुंचने के लिए उसे कितनी दूरी (न्यूनतम दूरी) और किस दिशा में ड्राइव करना चाहिए? (जब तक निर्दिष्ट न किया जाए, सभी मोड़ 90 डिग्री के मोड़ हैं)

Ans ✖ 1. 24 km पूर्व की ओर

✖ 2. 22 km पश्चिम की ओर

✖ 3. 23 km पूर्व की ओर

✔ 4. 21 km पश्चिम की ओर

Question ID : **44100918840**
Option 1 ID : **44100975135**
Option 2 ID : **44100975133**
Option 3 ID : **44100975134**
Option 4 ID : **44100975132**
Status : **Answered**
Chosen Option : **4**

Q.8 दिए गए कथनों और निष्कर्षों को ध्यानपूर्वक पढ़ें। यह मानते हुए कि कथनों में दी गई जानकारी सत्य है, भले ही वह सामान्यतः ज्ञात तथ्यों से भिन्न प्रतीत होती हो, तय करें कि दिए गए निष्कर्षों में से कौन-से निष्कर्ष कथनों का तार्किक रूप से अनुसरण करते हैं।

कथन:
सभी गलीचे, मोची हैं।
सभी गलीचे, चूड़ियाँ हैं।
सभी चूड़ियाँ, चटाई हैं।

निष्कर्ष:
(I): सभी गलीचे, चटाई हैं।
(II): कुछ चूड़ियाँ, मोची हैं।

Ans ✘ 1. केवल निष्कर्ष (I) अनुसरण करता है।

✘ 2. केवल निष्कर्ष (II) अनुसरण करता है।

✔ 3. निष्कर्ष (I) और (II) दोनों अनुसरण करते हैं।

✘ 4.
न तो निष्कर्ष (I) और न ही निष्कर्ष (II) अनुसरण करता है।

Question ID : **441009108818**
Option 1 ID : **441009433090**
Option 2 ID : **441009433089**
Option 3 ID : **441009433087**
Option 4 ID : **441009433088**
Status : **Answered**
Chosen Option : **3**

Section : **Logical Reasoning and Data interpretation**

Q.1 निम्नांकित पाई चार्ट में एक कंपनी के पाँच विभागों में कार्य करने वाले अधिकारियों और कार्यालय सहायकों की संख्या को दर्शाया गया है। अधिकारियों और कार्यालय सहायकों की कुल संख्या क्रमशः 800 और 1000 है। चार्ट का ध्यानपूर्वक अध्ययन कीजिए और निम्नलिखित प्रश्न का उत्तर दीजिए।

एक कंपनी के पांच विभागों में अधिकारियों की संख्या

- HR — 20%
- वित्त — 16%
- IT — 16%
- विपणन — 22%
- विज्ञापन — 14%
- लेखा परीक्षा — 12%

एक कंपनी के पांच विभागों में कार्यालय-सहायकों की संख्या

- HR — 25%
- वित्त — 20%
- IT — 17%
- विपणन — 15%
- विज्ञापन — 15%
- लेखा परीक्षा — 8%
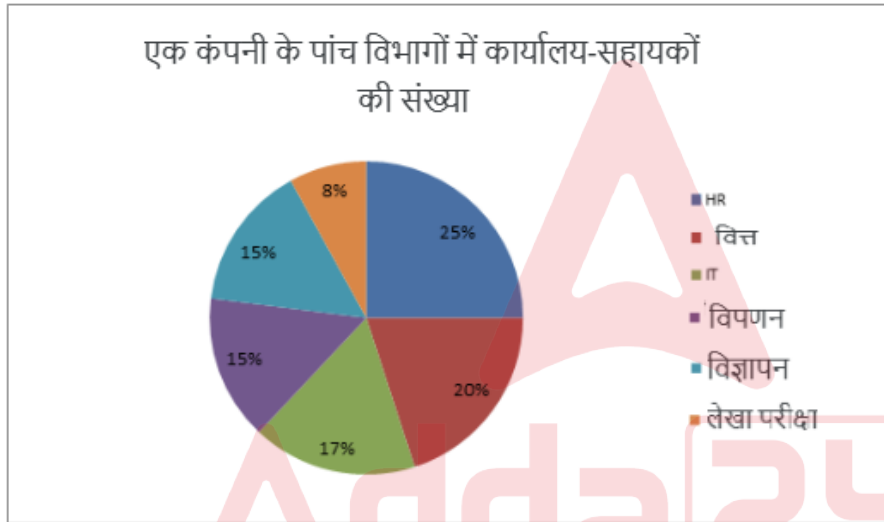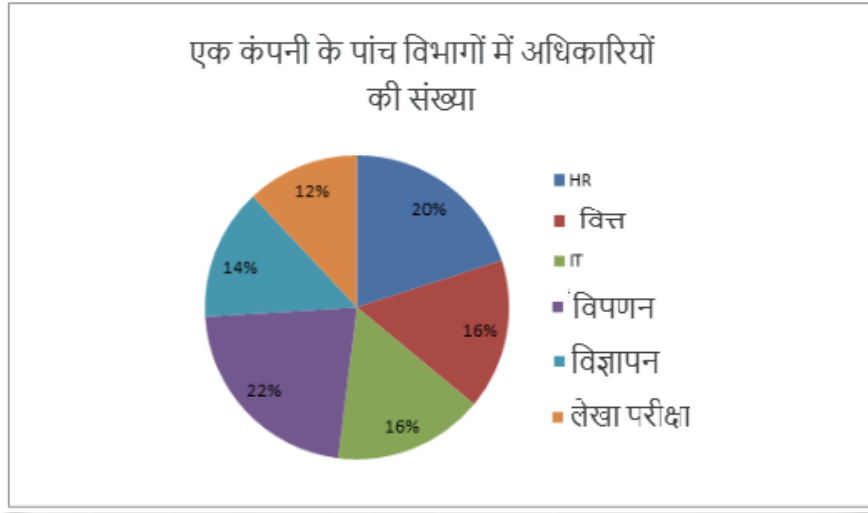
HR, वित्त और विज्ञापन विभागों में अधिकारियों की औसत संख्या, HR, विपणन और IT विभागों में कार्यालय सहायकों की औसत संख्या का कितना प्रतिशत (दशमलव के 2 स्थानों तक पूर्णांकित) है?

Ans
❌ 1. 71.67%

❌ 2. 68.98%

✅ 3. 70.18%

❌ 4. 72.56%

Question ID : **44100976413**
Option 1 ID : **441009303892**
Option 2 ID : **441009303889**
Option 3 ID : **441009303890**
Option 4 ID : **441009303891**
Status : **Answered**
Chosen Option : **3**

Q.2 अंग्रेजी वर्णमाला क्रम के आधार पर, निम्नलिखित चार अक्षर-समूह युग्मों में से तीन युग्म एक निश्चित तरीके से समान हैं और इस प्रकार एक ग्रुप बनाते हैं। वह कौन-सा अक्षर-समूह युग्म है, जो उस ग्रुप समूह से संबंधित नहीं है?
(नोटः असंगत अक्षर-समूह युग्म व्यंजनों/स्वरों की संख्या या उनकी स्थिति पर आधारित नहीं है।)

Ans ✗ 1. LE : ZS

✗ 2. VO : JC

✓ 3. EY : UO

✗ 4. GZ : UN

Question ID : **44100963050**
Option 1 ID : **441009251236**
Option 2 ID : **441009251237**
Option 3 ID : **441009251238**
Option 4 ID : **441009251235**
Status : **Answered**
Chosen Option : **3**

Q.3 निम्नलिखित तालिका वर्ष 2010 से 2013 के दौरान एक शहर में स्नातक पुरुषों और महिलाओं की कुल संख्या तथा स्नातकोत्तर पुरुषों और महिलाओं की कुल संख्या दर्शाती है। तालिका का अध्ययन कीजिए और दिए गए प्रश्न का उत्तर दीजिए।

वर्ष	2010	2011	2012	2013
स्नातक पुरुष	1200	1400	1500	1600
स्नातक महिलाएँ	800	900	1000	1200
स्नातकोत्तर पुरुष	1000	1200	1250	1300
स्नातकोत्तर महिलाएँ	600	750	800	900

सभी वर्षों में, स्नातकोत्तर महिलाओं की कुल संख्या, स्नातक पुरुषों की कुल संख्या की कितनी प्रतिशत (दशमलव के 2 स्थानों तक पूर्णांकित) है?

Ans ✗ 1. 50.62%

✓ 2. 53.51%

✗ 3. 52.50%

✗ 4. 54.61%

Question ID : **44100968281**
Option 1 ID : **441009274277**
Option 2 ID : **441009274279**
Option 3 ID : **441009274278**
Option 4 ID : **441009274280**
Status : **Answered**
Chosen Option : **2**

Q.4 निम्नांकित पाई चार्ट में, विभिन्न श्रेणियों (मकान किराया, किराना, शिक्षा, स्वास्थ्य, दान और बचत) एक परिवार का मासिक व्यय दर्शाया गया है। परिवार की कुल आय ₹20,000 है। चार्ट का अध्ययन कीजिए और दिए गए प्रश्न का उत्तर दीजिए।

परिवार का मासिक व्यय

- 15%
- 20%
- 25%
- 20%
- 10%
- 10%

Legend:
- ■ मकान किराया
- ■ किराना
- ■ शिक्षा
- ■ स्वास्थ्य
- ■ दान
- ■ बचत
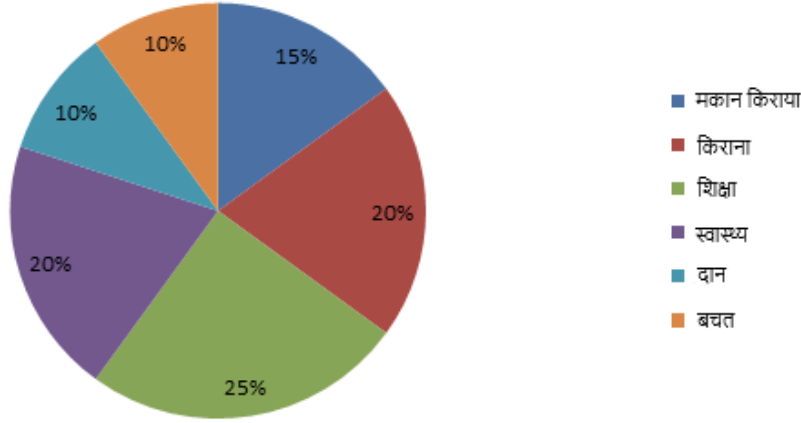
मकान किराया, शिक्षा और स्वास्थ्य पर किया गया कुल व्यय कितना है?

Ans
✓ 1. ₹12,000
✗ 2. ₹14,000
✗ 3. ₹16,000
✗ 4. ₹10,000

Q.5 सात बॉक्स M, N, O, P, S, T और U एक के ऊपर एक रखे गए हैं, लेकिन जरूरी नहीं कि इसी क्रम में रखे गए हों। केवल P को M के ऊपर रखा गया है। M और U के बीच केवल दो बॉक्स रखे गए हैं। केवल N को S के नीचे रखा गया है। O को U के ठीक ऊपर नहीं रखा गया है। T और N के बीच कितने बॉक्स रखे गए हैं?

Ans
✓ 1. दो
✗ 2. तीन
✗ 3. एक
✗ 4. चार

Q.6 निम्नलिखित बार आलेख 5 अलग-अलग कंपनियों P, Q, R, S और T द्वारा निर्मित और बेचे गए टेलीविजन सेटों की संख्या (हजार में) दर्शाता है। आलेख का अध्ययन कीजिए और नीचे दिए प्रश्न का उत्तर दीजिए।

5 कंपनियों P, Q, R, S और T द्वारा निर्मित और बेचे गए टीवी सेटों की संख्या (हजार में)

- बेचे गए टीवी सेट
- निर्मित टीवी सेट
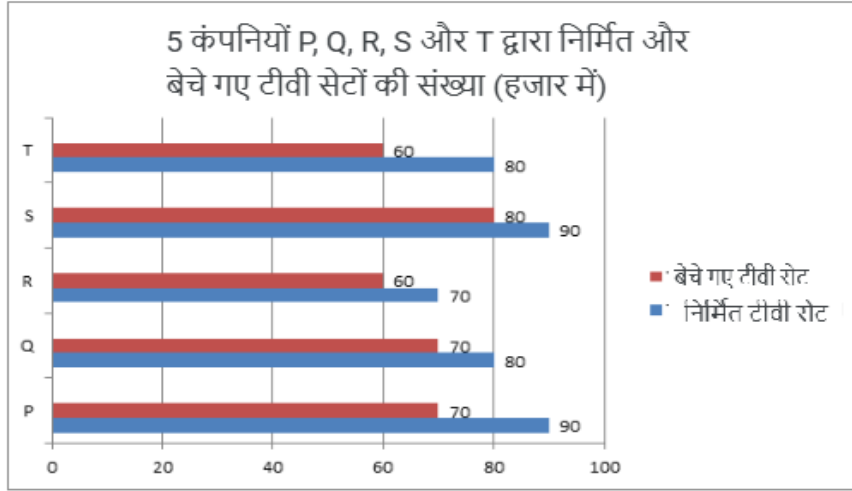
कंपनियों Q और S द्वारा बेचे गए टेलीविजन सेटों की औसत संख्या, कंपनियों P, R और T द्वारा निर्मित टेलीविजन सेटों की औसत संख्या की कितनी प्रतिशत है?

Ans ✘ 1. 94.64%

✘ 2. 92.68%

✘ 3. 90.45%

✔ 4. 93.75%

Question ID : **44100968921**
Option 1 ID : **441009276168**
Option 2 ID : **441009276171**
Option 3 ID : **441009276169**
Option 4 ID : **441009276170**
Status : **Answered**
Chosen Option : **4**

Q.7 दी गई श्रृंखला को तार्किक रूप से पूर्ण बनाने के लिए, निम्नलिखित में से कौन-सा अक्षर-संख्या समूह प्रश्न-चिह्न (?) के स्थान पर आएगा?

JKG 47 HIE 57 FGC 67 DEA 77 ?

Ans ✘ 1. BDX 87

✔ 2. BCY 87

✘ 3. BGM 86

✘ 4. BBX 86

Question ID : **44100923059**
Option 1 ID : **44100991971**
Option 2 ID : **44100991970**
Option 3 ID : **44100991973**
Option 4 ID : **44100991972**
Status : **Answered**
Chosen Option : **2**

Q.8 किसी निश्चित कूट भाषा में,

'A @ B' का अर्थ है कि 'A, B का पुत्र है',
'A – B' का अर्थ है कि 'A, B का भाई है',
'A x B' का अर्थ है कि 'A, B की पत्नी है' और
'A ÷ B' का अर्थ है कि 'A, B का पिता है'।

यदि 'T @ Y x E ÷ W – R' है, तो T का R से क्या संबंध है?

Ans ✗ 1. पुत्र

✗ 2. पति

✗ 3. पिता

✔ 4. भाई

Question ID : **44100918799**
Option 1 ID : **44100974962**
Option 2 ID : **44100974963**
Option 3 ID : **44100974960**
Option 4 ID : **44100974961**
Status : **Answered**
Chosen Option : **4**

Section : **Quantitative Aptitude**

Q.1 40 आदमी किसी कार्य को 20 दिन में पूरा कर सकते हैं। उन्होंने साथ मिलकर कार्य करना शुरू किया। 10 दिन बाद, 10 और आदमी उनके साथ जुड़ गए। अब उन्हें शेष कार्य पूरा करने में कितने दिन लगेंगे?

Ans ✗ 1. 4

✗ 2. 10

✗ 3. 6

✔ 4. 8

Question ID : **44100967284**
Option 1 ID : **441009267886**
Option 2 ID : **441009267887**
Option 3 ID : **441009267888**
Option 4 ID : **441009267889**
Status : **Answered**
Chosen Option : **4**

Q.2 एक रेलगाड़ी 40 मिनट में 60 km की दूरी तय करती है। एक हवाई जहाज़ की चाल, रेलगाड़ी की चाल से दोगुनी है। हवाई जहाज़ द्वारा 20 मिनट में कितनी दूरी (km में) तय की जाती है?

Ans ✗ 1. 45

✔ 2. 60

✗ 3. 55

✗ 4. 50

Question ID : **44100963582**
Option 1 ID : **441009253345**
Option 2 ID : **441009253344**
Option 3 ID : **441009253343**
Option 4 ID : **441009253346**
Status : **Answered**
Chosen Option : **2**

Q.3 Simplify the following expression.

$$\sqrt{\frac{0.1250 \times 0.040 \times 0.008}{0.002 \times 0.0005 \times 0.025}}$$

Ans ✔ 1. 40

✗ 2. 20

✗ 3. 30

✗ 4. 50

Question ID : **44100963533**
Option 1 ID : **441009253149**
Option 2 ID : **441009253148**
Option 3 ID : **441009253147**
Option 4 ID : **441009253150**
Status : **Answered**
Chosen Option : **1**

Q.4 दो व्यक्तियों A और B की कुल आय बराबर है। हालाँकि, A को उसके मूल वेतन का 60% भत्ते के रूप में प्राप्त होता है और B को उसके मूल वेतन का 50% भत्ते के रूप में प्राप्त होता है। A और B के मूल वेतनों का अनुपात ज्ञात कीजिए।

Ans ✗ 1. 16 : 13

✔ 2. 15 : 16

✗ 3. 13 : 15

✗ 4. 14 : 15

Question ID : **44100962804**
Option 1 ID : **441009250318**
Option 2 ID : **441009250317**
Option 3 ID : **441009250316**
Option 4 ID : **441009250315**
Status : **Answered**
Chosen Option : **2**

Q.5 तेल के मूल्य में 40% की वृद्धि हुई है। यदि कुल व्यय अपरिवर्तित रहता है, तो खपत में कमी और मूल खपत का अनुपात ज्ञात कीजिए।

Ans ✗ 1. 2 : 5

✗ 2. 3 : 7

✔ 3. 2 : 7

✗ 4. 1 : 5

Question ID : **44100962795**
Option 1 ID : **441009250239**
Option 2 ID : **441009250242**
Option 3 ID : **441009250241**
Option 4 ID : **441009250240**
Status : **Answered**
Chosen Option : **3**

Q.6 न्यूनतम कितने वर्षों में, ₹5,000 की धनराशि पर $6\frac{1}{4}\%$ वार्षिक ब्याज दर से प्राप्त साधारण ब्याज, पूर्ण संख्या में रुपयों में प्राप्त होगा?

Ans ✗ 1. 3

    ✓ 2. 2

    ✗ 3. 4

    ✗ 4. 5

Question ID : **44100962833**
Option 1 ID : **441009250381**
Option 2 ID : **441009250379**
Option 3 ID : **441009250380**
Option 4 ID : **441009250382**
Status : **Answered**
Chosen Option : **2**

Section : **English Language**

Q.1 Select the most appropriate adjective to fill in the blank.

The mountaineer felt very _____ after climbing the steep mountain trail and sat down to rest.

Ans ✗ 1. hesitant

    ✗ 2. cognisant

    ✗ 3. jubilant

    ✓ 4. lethargic

Question ID : **44100947720**
Option 1 ID : **441009189974**
Option 2 ID : **441009189973**
Option 3 ID : **441009189971**
Option 4 ID : **441009189972**
Status : **Answered**
Chosen Option : **4**

Q.2 Select the option that can be used as a one-word substitute for the given group of words.

A person who helps the needy

Ans ✗ 1. Alchemist

    ✓ 2. Samaritan

    ✗ 3. Misogynist

    ✗ 4. Optimistic

Question ID : **44100947754**
Option 1 ID : **441009190106**
Option 2 ID : **441009190104**
Option 3 ID : **441009190103**
Option 4 ID : **441009190105**
Status : **Answered**
Chosen Option : **2**

Q.3 Sentences of a paragraph are given below. While the first and the last sentences (S1 and S6) are in the correct order, the sentences in between are jumbled up. Arrange the sentences in the correct order to form a meaningful and coherent paragraph.

S1. Television has become the most popular source of entertainment these days.
P. A study of the graph showing time spent on watching TV and on reading amply supports my contention.
Q. Young children are fascinated by it.
R. Twenty years ago, a kid would spend 9-10 hours daily on reading.
S. They are quite familiar with TV serials, their stars and the intricacies of their respective plots.
S6. The number of hours devoted to reading have steadily declined and reached the pathetic figure of an hour a day.

Ans ✗ 1. RPSQ

✗ 2. RSPQ

✓ 3. QSPR

✗ 4. QPSR

Question ID : **44100947735**
Option 1 ID : **441009190030**
Option 2 ID : **441009190029**
Option 3 ID : **441009190027**
Option 4 ID : **441009190028**
Status : **Answered**
Chosen Option : **3**

Q.4 Select the most appropriate ANTONYM of the underlined word.

He was labelled a philistine for his open disdain of modern art.

Ans ✗ 1. Dynamic

✓ 2. Intellectual

✗ 3. Plutocrat

✗ 4. Libertine

Question ID : **44100948506**
Option 1 ID : **441009193332**
Option 2 ID : **441009193333**
Option 3 ID : **441009193335**
Option 4 ID : **441009193334**
Status : **Answered**
Chosen Option : **4**

Q.5 **Select the most appropriate meaning of the given proverb.**

Don't put all your eggs in one basket.

Ans ✗ 1. Eggs are fragile and should be handled with care.

✗ 2. One should refrain from gratuitous spoilage.

✗ 3. Baskets are meant to hold many items.

✓ 4. One should not concentrate all efforts and resources in one area as one could lose everything.

Question ID : **44100948511**
Option 1 ID : **441009193362**
Option 2 ID : **441009193363**
Option 3 ID : **441009193361**
Option 4 ID : **441009193360**
Status : **Answered**
Chosen Option : **4**

Comprehension:

Read the given passage and answers the questions that follow.

There is, of course, no question of belief without evidence. We must beware of confusion between the way in which a Christian first assents to certain propositions and the way in which he afterwards adheres to them. These must be carefully distinguished. Of the second it is true, in a sense, to say that Christians do recommend a certain discounting of apparent contrary evidence. But so far as I know it is not expected that a man should assent to these propositions in the first place without evidence or in the teeth of the evidence. At any rate, if anyone expects that, I certainly do not. And in fact, the man who accepts Christianity always thinks he had good evidence; whether, like Dante, physical or metaphysical arguments, or historical evidence, or the evidence of religious experience, or authority, or all these together. For, of course, authority, however we may value it in this or that particular instance, is a kind of evidence. All of our historical beliefs, most of our geographical beliefs, many of our beliefs about matters that concern us in daily life, are accepted on the authority of other human beings, whether we are Christians, Atheists, Scientists or Men-in-the-Street.

SubQuestion No : 6

Q.6 **What type(s) of evidence does the passage suggest might lead a person to accept Christianity?**

Ans ✓ 1. Physical, metaphysical, historical, experiential, or authoritative evidence or a combination thereof

✗ 2. Primarily emotional responses, dismissing logical or historical arguments

✗ 3. Only direct, personal religious experiences, excluding any other form of reasoning

✗ 4. Solely reliance on philosophical arguments, disregarding any physical proof

Question ID : **44100947942**
Option 1 ID : **441009190843**
Option 2 ID : **441009190842**
Option 3 ID : **441009190841**
Option 4 ID : **441009190844**
Status : **Answered**
Chosen Option : **1**

Comprehension:

Read the given passage and answers the questions that follow.

There is, of course, no question of belief without evidence. We must beware of confusion between the way in which a Christian first assents to certain propositions and the way in which he afterwards adheres to them. These must be carefully distinguished. Of the second it is true, in a sense, to say that Christians do recommend a certain discounting of apparent contrary evidence. But so far as I know it is not expected that a man should assent to these propositions in the first place without evidence or in the teeth of the evidence. At any rate, if anyone expects that, I certainly do not. And in fact, the man who accepts Christianity always thinks he had good evidence; whether, like Dante, physical or metaphysical arguments, or historical evidence, or the evidence of religious experience, or authority, or all these together. For, of course, authority, however we may value it in this or that particular instance, is a kind of evidence. All of our historical beliefs, most of our geographical beliefs, many of our beliefs about matters that concern us in daily life, are accepted on the authority of other human beings, whether we are Christians, Atheists, Scientists or Men-in-the-Street.

SubQuestion No : 7

Q.7 What is the most suitable title for the given passage?

Ans ✗ 1. The Dangers of Blind Faith in Modern Science

✗ 2. The Inherent Contradictions within an Atheistic Worldview

✔ 3. The Role of Evidence and Authority in Christian Belief

✗ 4. The Superiority of Religious Experience over Historical Facts

Question ID : **44100947940**
Option 1 ID : **441009190833**
Option 2 ID : **441009190836**
Option 3 ID : **441009190834**
Option 4 ID : **441009190835**
Status : **Answered**
Chosen Option : **3**

Comprehension:

Read the given passage and answers the questions that follow.

There is, of course, no question of belief without evidence. We must beware of confusion between the way in which a Christian first assents to certain propositions and the way in which he afterwards adheres to them. These must be carefully distinguished. Of the second it is true, in a sense, to say that Christians do recommend a certain discounting of apparent contrary evidence. But so far as I know it is not expected that a man should assent to these propositions in the first place without evidence or in the teeth of the evidence. At any rate, if anyone expects that, I certainly do not. And in fact, the man who accepts Christianity always thinks he had good evidence; whether, like Dante, physical or metaphysical arguments, or historical evidence, or the evidence of religious experience, or authority, or all these together. For, of course, authority, however we may value it in this or that particular instance, is a kind of evidence. All of our historical beliefs, most of our geographical beliefs, many of our beliefs about matters that concern us in daily life, are accepted on the authority of other human beings, whether we are Christians, Atheists, Scientists or Men-in-the-Street.

SubQuestion No : 8

Q.8 What is the tone of the given passage?

Ans ✗ 1. Humorous and satirical

✗ 2. Emotional and passionate

✓ 3. Analytical and argumentative

✗ 4. Condescending and dismissive

Question ID : **44100947941**
Option 1 ID : **441009190839**
Option 2 ID : **441009190838**
Option 3 ID : **441009190840**
Option 4 ID : **441009190837**
Status : **Answered**
Chosen Option : **3**

Section : **Technical Knowledge**

Q.1 For a long transmission line, the ABCD parameters are used to characterise its performance. Which of the following describes the relationship between the voltage at the sending end (Vs) and the voltage at the receiving end (Vr) for a transmission line?

Ans ✓ 1. Vs = AVr + BIr

✗ 2. Vs = AVr + BIs

✗ 3. Vr = AVs + BIs

✗ 4. Vr = AVs + BIr

Question ID : **44100949605**
Option 1 ID : **441009197689**
Option 2 ID : **441009197691**
Option 3 ID : **441009197690**
Option 4 ID : **441009197692**
Status : **Answered**
Chosen Option : **1**

Q.2 The total flux Φ leaving a sphere of radius **r**, due to a point charge **q** at the centre is given by:

Ans ✗ 1. $\Phi = q$

✗ 2. $\Phi = \dfrac{q}{4\pi\varepsilon_0 r^2}$

✗ 3. $\Phi = 4\pi\varepsilon_0 q$

✓ 4. $\Phi = \dfrac{q}{\varepsilon_0}$

Question ID : **44100989583**
Option 1 ID : **441009356512**
Option 2 ID : **441009356511**
Option 3 ID : **441009356514**
Option 4 ID : **441009356513**
Status : **Answered**
Chosen Option : **1**

Q.3 In the context of an infinite busbar, which parameter remains constant regardless of the connected alternator's output?

Ans ✗ 1. Reactive power

✓ 2. Frequency

✗ 3. Current

✗ 4. Power factor

Question ID : **44100996241**
Option 1 ID : **441009383011**
Option 2 ID : **441009383009**
Option 3 ID : **441009383008**
Option 4 ID : **441009383010**
Status : **Answered**
Chosen Option : **2**

Q.4 In Practical Dual converter, circulating current is limited by inserting a/an _____ between two converters.

Ans ✓ 1. inductor

✗ 2. fuse

✗ 3. capacitor

✗ 4. resistor

Question ID : **441009147778**
Option 1 ID : **441009587021**
Option 2 ID : **441009587024**
Option 3 ID : **441009587022**
Option 4 ID : **441009587023**
Status : **Answered**
Chosen Option : **1**

Q.5 **What is the form factor of a sine wave in a full-wave rectifier voltmeter?**

Ans ✔ 1. 1.11

✘ 2. 2

✘ 3. 1.57

✘ 4. 0.707

Question ID : **441009120146**
Option 1 ID : **441009477643**
Option 2 ID : **441009477645**
Option 3 ID : **441009477644**
Option 4 ID : **441009477646**
Status : **Answered**
Chosen Option : **1**

Q.6 **Reproducibility in measurements refers to:**

Ans ✘ 1. the smallest change in input that an instrument can detect

✘ 2. the ability of an instrument to give an accurate reading

✘ 3. the ability to obtain the same result when the same person repeats a measurement

✔ 4. the ability to obtain consistent results under different conditions

Question ID : **441009116908**
Option 1 ID : **441009464761**
Option 2 ID : **441009464762**
Option 3 ID : **441009464760**
Option 4 ID : **441009464759**
Status : **Answered**
Chosen Option : **4**

Q.7 **For a short-length transmission line, the voltage regulation is primarily influenced by:**

Ans ✘ 1. the series reactance and the shunt capacitance

✘ 2. only the series reactance of the line

✘ 3. the series resistance and the line's inductive reactance

✔ 4. the series resistance and the load power factor

Question ID : **44100949657**
Option 1 ID : **441009197894**
Option 2 ID : **441009197896**
Option 3 ID : **441009197895**
Option 4 ID : **441009197893**
Status : **Answered**
Chosen Option : **3**

Q.8 How does an increase in temperature affect the resistance of the voltage coil?

Ans ✗ 1. No effect on resistance

✓ 2. Increases resistance

✗ 3. Decreases resistance

✗ 4. Increases current flow

Question ID : **441009120311**
Option 1 ID : **441009478288**
Option 2 ID : **441009478286**
Option 3 ID : **441009478287**
Option 4 ID : **441009478289**
Status : **Answered**
Chosen Option : **2**

Q.9 Delay time in IGBT is time for _____.

Ans ✓ 1. collector emitter voltage, V_{CE} to fall from V_{CE} to 0.9 V_{CE}

✗ 2. collector current, I_C to rise from 0.9 I_C to final value I_C

✗ 3. collector current, I_C to rise from 0.1I_C to 0.9 I_C

✗ 4. collector emitter voltage, V_{CE} to fall from 0.9V_{CE} to 0.1 V_{CE}

Question ID : **441009150870**
Option 1 ID : **441009598720**
Option 2 ID : **441009598723**
Option 3 ID : **441009598722**
Option 4 ID : **441009598721**
Status : **Answered**
Chosen Option : **1**

Q.10 In a step-down autotransformer with turns ratio of 10 : 5, the inductively transferred power is:

Ans ✗ 1. equal to the total power

✗ 2. greater than the total power

✓ 3. half of the total power

✗ 4. independent of the load

Question ID : **441009117083**
Option 1 ID : **441009465462**
Option 2 ID : **441009465464**
Option 3 ID : **441009465463**
Option 4 ID : **441009465465**
Status : **Answered**
Chosen Option : **3**

Q.11 The critical clearing time depends on which of the following factors in a power system?

Ans ✔ 1. The type of fault and the location of the fault

✘ 2. The fault impedance and line resistance

✘ 3. The total system load and generation capacity

✘ 4. The voltage level at the fault location

Question ID : **44100949039**
Option 1 ID : **441009195452**
Option 2 ID : **441009195454**
Option 3 ID : **441009195453**
Option 4 ID : **441009195455**
Status : **Answered**
Chosen Option : **3**

Q.12 For a transmission line with an insulator string, if the string efficiency is low, which of the following can be a potential consequence?

Ans ✔ 1. Increased voltage across the first insulator unit, potentially leading to insulation breakdown

✘ 2. Increased losses in the transmission line

✘ 3. Lower sag in the transmission line

✘ 4. Higher mechanical strength of the transmission line

Question ID : **44100949592**
Option 1 ID : **441009197642**
Option 2 ID : **441009197641**
Option 3 ID : **441009197644**
Option 4 ID : **441009197643**
Status : **Answered**
Chosen Option : **2**

Q.13 In a potential transformer (PT), where is the primary winding connected?

Ans ✘ 1. Load

✔ 2. High-voltage circuit

✘ 3. Low-voltage circuit

✘ 4. Secondary winding

Question ID : **441009120215**
Option 1 ID : **441009477911**
Option 2 ID : **441009477912**
Option 3 ID : **441009477913**
Option 4 ID : **441009477914**
Status : **Answered**
Chosen Option : **2**

Q.14 Which of the following is a type of power diode?

Ans ✗ 1. Bidirectional thyristor diode

✗ 2. TRIAC

✓ 3. Fast recovery diode

✗ 4. Zener diode

Question ID : **441009150998**
Option 1 ID : **441009599227**
Option 2 ID : **441009599228**
Option 3 ID : **441009599226**
Option 4 ID : **441009599225**
Status : **Answered**
Chosen Option : **3**

Q.15 The electric field intensity E at a point due to a continuous volume charge density ρ_v is given by:

Ans

✗ 1. $E = \dfrac{1}{4\pi\varepsilon_0} \int \dfrac{\rho_v \, dV}{r} \hat{r}$

✗ 2. $E = \dfrac{\rho_v}{\varepsilon_0}$

✗ 3. $E = \dfrac{1}{4\pi\varepsilon_0} \int \rho_v \, dV$

✓ 4. $E = \dfrac{1}{4\pi\varepsilon_0} \int \dfrac{\rho_v \, dV}{r^2} \hat{r}$

Question ID : **44100989760**
Option 1 ID : **441009357202**
Option 2 ID : **441009357204**
Option 3 ID : **441009357203**
Option 4 ID : **441009357201**
Status : **Answered**
Chosen Option : **4**

Q.16 A step-up chopper has input voltage of 220 V and output voltage of 660 V. If non-conducting time of thyristor is 100 μs, calculate pulse width of output voltage.

Ans ✗ 1. 100 μs

✗ 2. 400 μs

✓ 3. 200 μs

✗ 4. 300 μs

Question ID : **441009150825**
Option 1 ID : **441009598540**
Option 2 ID : **441009598543**
Option 3 ID : **441009598541**
Option 4 ID : **441009598542**
Status : **Answered**
Chosen Option : **1**

Q.17 At what load angle (δ) is maximum power developed in a synchronous motor?

Ans ✗ 1. 0°

✗ 2. 15°

✓ 3. 90°

✗ 4. 45°

Question ID : **441009100040**
Option 1 ID : **441009398224**
Option 2 ID : **441009398225**
Option 3 ID : **441009398227**
Option 4 ID : **441009398226**
Status : **Answered**
Chosen Option : **3**

Q.18 In a DC machine, the cross-magnetising effect of armature reaction is caused by:

Ans ✗ 1. eddy currents in the armature

✓ 2. armature MMF acting perpendicular to the main field

✗ 3. hysteresis losses

✗ 4. armature MMF acting parallel to the main field

Question ID : **44100989455**
Option 1 ID : **441009356233**
Option 2 ID : **441009356231**
Option 3 ID : **441009356234**
Option 4 ID : **441009356232**
Status : **Answered**
Chosen Option : **2**

Q.19 A series RLC circuit is in resonance when:

Ans ✗ 1. $X_L > X_C$

✗ 2. $X_C > X_L$

✓ 3. $X_L = X_C$

✗ 4. $R = X_L - X_C$

Question ID : **441009157433**
Option 1 ID : **441009624900**
Option 2 ID : **441009624901**
Option 3 ID : **441009624899**
Option 4 ID : **441009624902**
Status : **Answered**
Chosen Option : **3**

Q.20 The inductive reactance (XL) of an inductor depends on:

Ans ✗ 1. current and inductance

✗ 2. resistance and capacitance

✗ 3. voltage and resistance

✔ 4. frequency and inductance

Question ID : **441009157409**
Option 1 ID : **441009624804**
Option 2 ID : **441009624806**
Option 3 ID : **441009624803**
Option 4 ID : **441009624805**
Status : **Answered**
Chosen Option : **4**

Q.21 The distortion factor of a two-pulse converter is:

Ans ✗ 1. measure of harmonic content in output frequency

✗ 2. measure of harmonic content in output current

✗ 3. measure of harmonic content in output voltage

✔ 4. measure of harmonic content in input current

Question ID : **441009148635**
Option 1 ID : **441009590365**
Option 2 ID : **441009590363**
Option 3 ID : **441009590362**
Option 4 ID : **441009590364**
Status : **Answered**
Chosen Option : **2**

Q.22 Gauss's law in differential form is given by:

Ans ✗ 1. $\nabla \cdot E = \rho$

✗ 2. $\nabla \times E = \dfrac{\rho}{\varepsilon_0}$

✔ 3. $\nabla \cdot E = \dfrac{\rho}{\varepsilon_0}$

✗ 4. $\nabla \times E = 0$

Question ID : **44100989555**
Option 1 ID : **441009356401**
Option 2 ID : **441009356400**
Option 3 ID : **441009356399**
Option 4 ID : **441009356402**
Status : **Answered**
Chosen Option : **3**

Q.23 During an unsymmetrical fault, such as a line-to-line fault, the transmission line typically experiences:

Ans ✗ 1. a balanced fault current in all phases

✗ 2. a complete voltage drop in the faulted phases only

✗ 3. no change in the line's impedance

✓ 4. a current unbalance between the faulted phases and the unaffected phase

Question ID : **44100948857**
Option 1 ID : **441009194736**
Option 2 ID : **441009194739**
Option 3 ID : **441009194738**
Option 4 ID : **441009194737**
Status : **Answered**
Chosen Option : **4**

Q.24 Which of the following circuit elements can store energy and return it to the circuit?

Ans ✓ 1. Capacitor and inductor only

✗ 2. Resistor only

✗ 3. Capacitor only

✗ 4. Inductor only

Question ID : **441009159369**
Option 1 ID : **441009632330**
Option 2 ID : **441009632327**
Option 3 ID : **441009632328**
Option 4 ID : **441009632329**
Status : **Answered**
Chosen Option : **1**

Q.25 Which of the following statements about load sharing in paralleled transformers is true?

Ans ✗ 1. Load sharing is independent of impedance.

✗ 2. Transformers with different kVA ratings cannot be paralleled.

✓ 3. Transformers with the same Z% share load based on their kVA ratings.

✗ 4. Higher Z% transformers always carry more load.

Question ID : **441009119641**
Option 1 ID : **441009475686**
Option 2 ID : **441009475683**
Option 3 ID : **441009475684**
Option 4 ID : **441009475685**
Status : **Answered**
Chosen Option : **3**

Q.26 A circuit has a lagging power factor. To improve the power factor, which of the following devices should be connected and how does it affect the current drawn?

Ans ✗ 1. Resistor in parallel – increases current

✓ 2. Capacitor in parallel – reduces current and improves power factor

✗ 3. Inductor in parallel – decreases power factor

✗ 4. Capacitor in series – improves power factor but increases current

Question ID : **441009159300**
Option 1 ID : **441009632071**
Option 2 ID : **441009632073**
Option 3 ID : **441009632072**
Option 4 ID : **441009632074**
Status : **Answered**
Chosen Option : **2**

Q.27 In the case of a single line-to-ground fault, the fault current is primarily determined by:

Ans ✗ 1. the zero-sequence impedance of the system

✓ 2. the total system impedance, including line and ground impedance

✗ 3. the negative-sequence impedance of the system

✗ 4. the positive-sequence impedance of the system

Question ID : **44100948896**
Option 1 ID : **441009194890**
Option 2 ID : **441009194891**
Option 3 ID : **441009194889**
Option 4 ID : **441009194888**
Status : **Answered**
Chosen Option : **2**

Q.28 Why do squirrel-cage induction motors NOT require slip rings?

Ans ✗ 1. They use permanent magnets.

✗ 2. They operate at synchronous speed.

✓ 3. Rotor bars are short-circuited internally.

✗ 4. They require external resistors.

Question ID : **441009109212**
Option 1 ID : **441009434568**
Option 2 ID : **441009434570**
Option 3 ID : **441009434569**
Option 4 ID : **441009434571**
Status : **Answered**
Chosen Option : **3**

Q.29 In a balanced star-connected three-phase system, the line voltage is 400 V. What is the approximate phase voltage?

Ans ✗ 1. 200 V

✗ 2. 400 V

✓ 3. 230 V

✗ 4. 250 V

Question ID : **441009159319**
Option 1 ID : **441009632162**
Option 2 ID : **441009632159**
Option 3 ID : **441009632160**
Option 4 ID : **441009632161**
Status : **Answered**
Chosen Option : **3**

Q.30 How does increasing the number of digits in a DVM affect its resolution?

Ans ✗ 1. It decreases the resolution.

✗ 2. It has no effect.

✗ 3. It reduces input impedance.

✓ 4. It increases the resolution.

Question ID : **441009117443**
Option 1 ID : **441009466931**
Option 2 ID : **441009466932**
Option 3 ID : **441009466933**
Option 4 ID : **441009466930**
Status : **Answered**
Chosen Option : **1**

Q.31 Why do electrostatic instruments NOT require a separate controlling torque mechanism?

Ans ✗ 1. Because they operate on direct current

✗ 2. Because damping torque is sufficient

✗ 3. Because they use a moving iron system

✓ 4. Because the electrostatic force naturally balances the movement

Question ID : **441009120829**
Option 1 ID : **441009480354**
Option 2 ID : **441009480356**
Option 3 ID : **441009480357**
Option 4 ID : **441009480355**
Status : **Answered**
Chosen Option : **4**

Q.32 The energy density stored in the electric field of an electric dipole is given by:

Ans

✓ 1. $w = \dfrac{1}{2}\varepsilon_0 E^2$

✗ 2. $w = \dfrac{1}{4}\varepsilon_0 E^2$

✗ 3. $w = \dfrac{1}{2}P \cdot E$

✗ 4. $w = \varepsilon_0 E^2$

Question ID : **44100989828**
Option 1 ID : **441009357480**
Option 2 ID : **441009357479**
Option 3 ID : **441009357478**
Option 4 ID : **441009357481**
Status : **Answered**
Chosen Option : **3**

Q.33 The magnetic field intensity H at a distance *r* from an infinitely long straight conductor carrying current *I* is given by:

Ans

✗ 1. $H = \dfrac{Ir}{2\pi}$

✓ 2. $H = \dfrac{I}{2\pi r}$

✗ 3. $H = \dfrac{I}{4\pi r}$

✗ 4. $H = \dfrac{2\pi I}{r}$

Question ID : **44100989821**
Option 1 ID : **441009357452**
Option 2 ID : **441009357450**
Option 3 ID : **441009357451**
Option 4 ID : **441009357453**
Status : **Answered**
Chosen Option : **2**

Q.34 In overvoltage protection schemes, what is the primary purpose of the 'voltage transformer' used in the protection circuit?

Ans ✗ 1. To isolate the protection relay from the high voltage system

✗ 2. To measure the line current during a fault

✗ 3. To step down the fault voltage

✓ 4. To provide an accurate representation of the system voltage at a reduced level

Question ID : **44100949714**
Option 1 ID : **441009198124**
Option 2 ID : **441009198122**
Option 3 ID : **441009198121**
Option 4 ID : **441009198123**
Status : **Answered**
Chosen Option : **1**

Q.35 Which of the following load flow methods uses the bus impedance matrix to solve the system's load flow equations?

Ans ✗ 1. Newton-Raphson Method

✗ 2. Fast Decoupled Load Flow Method

✓ 3. Z-bus or Gauss elimination method

✗ 4. Gauss-Seidel Method

Question ID : **44100948923**
Option 1 ID : **441009194993**
Option 2 ID : **441009194994**
Option 3 ID : **441009194995**
Option 4 ID : **441009194992**
Status : **Answered**
Chosen Option : **1**

Q.36 Which of the following is a type of controlling system in analogue instruments?

Ans ✗ 1. Electromagnetic control

✗ 2. Thermal control

✓ 3. Spring control

✗ 4. Induction control

Question ID : **441009120045**
Option 1 ID : **441009477255**
Option 2 ID : **441009477258**
Option 3 ID : **441009477256**
Option 4 ID : **441009477257**
Status : **Answered**
Chosen Option : **3**

Q.37 In Cross Field Theory, the term 'quadrature field' refers to a field that is:

Ans ✗ 1. generated by the capacitor

✓ 2. perpendicular to the stator's main field

✗ 3. opposite in direction to the rotor bars

✗ 4. parallel to the stator's main field

Question ID : **44100995798**
Option 1 ID : **441009381151**
Option 2 ID : **441009381149**
Option 3 ID : **441009381150**
Option 4 ID : **441009381148**
Status : **Answered**
Chosen Option : **2**

Q.38 For obtaining load commutation in Voltage source inverter, capacitive reactance of load must be _____ its inductive reactance.

Ans ✗ 1. less than

✓ 2. greater than

✗ 3. independent of

✗ 4. equal to

Question ID : **441009153314**
Option 1 ID : **441009608423**
Option 2 ID : **441009608422**
Option 3 ID : **441009608425**
Option 4 ID : **441009608424**
Status : **Answered**
Chosen Option : **2**

Q.39 Why is standardisation necessary in a DC potentiometer?

Ans ✗ 1. To adjust the power consumption of the circuit

✗ 2. To measure current with high precision

✗ 3. To improve the sensitivity of the instrument

✓ 4. To ensure accuracy by comparing with a known reference voltage

Question ID : **441009117410**
Option 1 ID : **441009466793**
Option 2 ID : **441009466792**
Option 3 ID : **441009466790**
Option 4 ID : **441009466791**
Status : **Answered**
Chosen Option : **4**

Q.40 An average responding voltmeter is reliable for measuring which type of AC waveform?

Ans ✗ 1. Pulsed DC signals

✗ 2. Distorted waveforms

✓ 3. Pure sine waves

✗ 4. High-frequency signals

Question ID : **441009120126**
Option 1 ID : **441009477565**
Option 2 ID : **441009477564**
Option 3 ID : **441009477563**
Option 4 ID : **441009477566**
Status : **Answered**
Chosen Option : **1**

Q.41 For a three-phase fault in a balanced power system, the fault current is primarily determined by:

Ans ✗ 1. the negative sequence impedance of the system

✗ 2. the total system impedance excluding the generator impedance

✓ 3. the positive sequence impedance of the system

✗ 4. the total system impedance including the ground path

Question ID : **44100948864**
Option 1 ID : **441009194765**
Option 2 ID : **441009194767**
Option 3 ID : **441009194764**
Option 4 ID : **441009194766**
Status : **Answered**
Chosen Option : **3**

Q.42 In a single-phase half wave circuit with RL load and freewheel diode, freewheel diode conducts only when _____.

Ans ✓ 1. SCR is reverse biased

✗ 2. SCR is forward biased and conducting

✗ 3. supply voltage is positive

✗ 4. SCR is forward biased

Question ID : **441009148148**
Option 1 ID : **441009588462**
Option 2 ID : **441009588463**
Option 3 ID : **441009588464**
Option 4 ID : **441009588461**
Status : **Answered**
Chosen Option : **1**

Q.43 Average load voltage in a buck chopper is given as: (where α is duty cycle of chopper, V_o is output voltage and V_s is supply voltage)

Ans ✗ 1. $V_o = \dfrac{1}{1-\alpha} V_s$

✗ 2. $V_o = \dfrac{1}{1+\alpha} V_s$

✓ 3. $V_o = \alpha V_s$

✗ 4. $V_o = \dfrac{1}{\alpha} V_s$

Question ID : **441009150793**
Option 1 ID : **441009598422**
Option 2 ID : **441009598423**
Option 3 ID : **441009598420**
Option 4 ID : **441009598421**
Status : **Answered**
Chosen Option : **3**

Q.44 The per unit system is used in power system analysis primarily to:

Ans ✗ 1. improve the precision of load flow calculations

✗ 2. increase the complexity of calculations in the power system

✗ 3. maintain consistency in physical units across all calculations

✓ 4. simplify the comparison of electrical quantities across different voltage levels

Question ID : **44100948954**
Option 1 ID : **441009195114**
Option 2 ID : **441009195113**
Option 3 ID : **441009195115**
Option 4 ID : **441009195112**
Status : **Answered**
Chosen Option : **4**

Q.45 In a single-phase capacitor commutated current source inverter with R load, the number of thyristors used are _____.

Ans ✗ 1. six

✗ 2. two

✗ 3. eight

✓ 4. four

Question ID : **441009153257**
Option 1 ID : **441009608196**
Option 2 ID : **441009608194**
Option 3 ID : **441009608197**
Option 4 ID : **441009608195**
Status : **Answered**
Chosen Option : **3**

Q.46 In the following circuit, resistors R1 = 2 Ω, R2 = 4 Ω and R3 = 6 Ω are connected in series. The total current flowing through the circuit with a 24 V DC supply is:

Ans ✗ 1. 4 A

✗ 2. 3 A

✓ 3. 2 A

✗ 4. 1 A

Question ID : **441009159358**
Option 1 ID : **441009632283**
Option 2 ID : **441009632284**
Option 3 ID : **441009632285**
Option 4 ID : **441009632286**
Status : **Answered**
Chosen Option : **3**

Q.47 If the population standard deviation is 12 and the sample size is 36, what is the standard error?

Ans   ✔ 1. 2

     ✘ 2. 3

     ✘ 3. 36

     ✘ 4. 12

Question ID : **441009117062**
Option 1 ID : **441009465380**
Option 2 ID : **441009465381**
Option 3 ID : **441009465379**
Option 4 ID : **441009465378**
Status : **Answered**
Chosen Option : **1**

Q.48 The electric flux density D at a distance r from a point charge Q is given by:

Ans

✘ 1. $D = \dfrac{Q}{4\pi r^3}\hat{r}$

✔ 2. $D = \dfrac{Q}{4\pi r^2}\hat{r}$

✘ 3. $D = \dfrac{Q}{4\pi \varepsilon_0 r^2}\hat{r}$

✘ 4. $D = \dfrac{Q}{4\pi \varepsilon r^2}\hat{r}$

Question ID : **44100989805**
Option 1 ID : **441009357393**
Option 2 ID : **441009357390**
Option 3 ID : **441009357391**
Option 4 ID : **441009357392**
Status : **Answered**
Chosen Option : **1**

Q.49 At the boundary between a conductor and free space, the tangential component of the electric field is:

Ans   ✘ 1. continuous

     ✘ 2. equal to surface charge density

     ✘ 3. discontinuous

     ✔ 4. zero

Question ID : **44100989368**
Option 1 ID : **441009355615**
Option 2 ID : **441009355618**
Option 3 ID : **441009355616**
Option 4 ID : **441009355617**
Status : **Answered**
Chosen Option : **1**

Q.50 If the applied voltage in an electrodynamometer-type voltmeter is doubled, what happens to the deflection?

Ans ✗ 1. It doubles

✗ 2. It remains the same

✓ 3. It becomes four times

✗ 4. It decreases by half

Question ID : **441009120396**
Option 1 ID : **441009478627**
Option 2 ID : **441009478626**
Option 3 ID : **441009478628**
Option 4 ID : **441009478629**
Status : **Answered**
Chosen Option : **1**

Q.51 In the Newton-Raphson method for load flow analysis, the size of the Jacobian matrix for a system with n buses is:

Ans ✓ 1. (2n−2) × (2n−2) matrix

✗ 2. n × n matrix

✗ 3. (n−1) × (n−1) matrix

✗ 4. (2n−1) × (2n−1) matrix

Question ID : **44100948944**
Option 1 ID : **441009195074**
Option 2 ID : **441009195072**
Option 3 ID : **441009195073**
Option 4 ID : **441009195075**
Status : **Answered**
Chosen Option : **4**

Q.52 In type A chopper, limit of continuous conduction is reached when (Given I_{mn} is initial value of current, I_{mx} is final value of current):

Ans ✗ 1. I_{mn} reaches infinity

✓ 2. I_{mn} goes to zero

✗ 3. I_{mx} reaches infinity

✗ 4. I_{mx} goes to zero

Question ID : **441009150742**
Option 1 ID : **441009598202**
Option 2 ID : **441009598200**
Option 3 ID : **441009598203**
Option 4 ID : **441009598201**
Status : **Answered**
Chosen Option : **2**

Q.53 In a double cage rotor, the outer cage has _____.

Ans ✗ 1. lower resistance and smaller cross-sectional area

✗ 2. higher resistance and larger cross-sectional area

✗ 3. lower resistance and larger cross-sectional area

✓ 4. higher resistance and smaller cross-sectional area

Question ID : **441009109318**
Option 1 ID : **441009434993**
Option 2 ID : **441009434996**
Option 3 ID : **441009434995**
Option 4 ID : **441009434994**
Status : **Answered**
Chosen Option : **4**

Q.54 Type E chopper operates in _____quadrant(s).

Ans ✗ 1. first

✗ 2. first and second

✗ 3. second

✓ 4. all four

Question ID : **441009150837**
Option 1 ID : **441009598588**
Option 2 ID : **441009598590**
Option 3 ID : **441009598589**
Option 4 ID : **441009598591**
Status : **Answered**
Chosen Option : **4**

Q.55 Which of the following is NOT a characteristic of a transformer?

Ans ✗ 1. Operates on alternating current (AC)

✓ 2. Changes the frequency of the electrical supply

✗ 3. Uses mutual induction between coils

✗ 4. Transfers power between circuits without frequency change

Question ID : **441009119859**
Option 1 ID : **441009476544**
Option 2 ID : **441009476545**
Option 3 ID : **441009476546**
Option 4 ID : **441009476543**
Status : **Answered**
Chosen Option : **2**

Q.56 In an RC circuit, the time constant (τ) is given by:

Ans ✔ 1. R.C

✘ 2. R/C

✘ 3. 1/(RC)

✘ 4. R + C

Question ID : **441009157402**
Option 1 ID : **441009624777**
Option 2 ID : **441009624776**
Option 3 ID : **441009624778**
Option 4 ID : **441009624775**
Status : **Answered**
Chosen Option : **1**

Q.57 Which of the following semiconductor devices does NOT belong to the thyristor family?

Ans ✘ 1. Programmable unijunction transistor

✘ 2. Silicon unilateral switch

✘ 3. Light activated thyristor

✔ 4. Insulated gate bipolar transistor

Question ID : **441009150982**
Option 1 ID : **441009599161**
Option 2 ID : **441009599164**
Option 3 ID : **441009599163**
Option 4 ID : **441009599162**
Status : **Answered**
Chosen Option : **4**

Q.58 The electric field at the centre of a uniformly charged circular ring is:

Ans ✘ 1. equal to the charge density of the ring

✔ 2. zero

✘ 3. maximum

✘ 4. minimum

Question ID : **44100989397**
Option 1 ID : **441009355734**
Option 2 ID : **441009355733**
Option 3 ID : **441009355731**
Option 4 ID : **441009355732**
Status : **Answered**
Chosen Option : **2**

Q.59 The potential **V** due to a uniform line charge density **λ** at a distance r (taking reference point r_0) is given by:

Ans

✗ 1. $V = \dfrac{\lambda}{4\pi\varepsilon_0 r}$

✓ 2. $V = \dfrac{\lambda}{4\pi\varepsilon_0}\ln\left(\dfrac{r_0}{r}\right)$

✗ 3. $V = \dfrac{\lambda}{2\pi\varepsilon_0}\ln r$

✗ 4. $V = \dfrac{\lambda}{\varepsilon_0 r}$

Question ID : **44100989529**
Option 1 ID : **441009356289**
Option 2 ID : **441009356287**
Option 3 ID : **441009356288**
Option 4 ID : **441009356290**
Status : **Answered**
Chosen Option : **2**

Q.60 Which statements about the equivalent circuit of a single-phase induction motor (neglecting core losses) are true?

I. The magnetising reactance (Xm) is connected in parallel with the rotor circuit only.
II. Rotor resistance is split into forward and backward components, each equal to Rr/2.
III. Core loss resistance (Rc) is omitted from the circuit.
IV. Stator impedance includes resistance (Rs) only.

Ans   ✗ 1. Statement I and II only

✓ 2. Statement II and III only

✗ 3. Statement III and IV only

✗ 4. Statement I and IV only

Question ID : **44100995809**
Option 1 ID : **441009399694**
Option 2 ID : **441009399695**
Option 3 ID : **441009399696**
Option 4 ID : **441009399697**
Status : **Answered**
Chosen Option : **3**

Q.61 A statically induced EMF occurs when:

Ans   ✗ 1. the loop and the field move together at the same speed

✓ 2. a stationary loop is placed in a changing magnetic field

✗ 3. a moving loop cuts through a stationary magnetic field

✗ 4. both the loop and the magnetic field remain constant

Question ID : **44100989686**
Option 1 ID : **441009356916**
Option 2 ID : **441009356913**
Option 3 ID : **441009356914**
Option 4 ID : **441009356915**
Status : **Answered**
Chosen Option : **2**

Q.62 Increasing rotor resistance in a wound-rotor induction motor affects starting torque by _____.

Ans   ✗ 1. leaving it unchanged

     ✗ 2. eliminating it

     ✔ 3. increasing it

     ✗ 4. decreasing it

Question ID : **441009109181**
Option 1 ID : **441009434450**
Option 2 ID : **441009434451**
Option 3 ID : **441009434449**
Option 4 ID : **441009434448**
Status : **Answered**
Chosen Option : **3**

Q.63 The real power (P) in an AC circuit is given by:

Ans   ✔ 1. P = VIcosθ

     ✗ 2. P = VIsinθ

     ✗ 3. P = VI

     ✗ 4. P = V/I

Question ID : **441009157439**
Option 1 ID : **441009624923**
Option 2 ID : **441009624924**
Option 3 ID : **441009624925**
Option 4 ID : **441009624926**
Status : **Answered**
Chosen Option : **1**

Q.64 In an AC circuit, the power factor is 0.6 lagging. If the active power consumed is 600 W, what is the apparent power?

Ans   ✔ 1. 1000 VA

     ✗ 2. 400 VA

     ✗ 3. 600 VA

     ✗ 4. 800 VA

Question ID : **441009157448**
Option 1 ID : **441009624959**
Option 2 ID : **441009624962**
Option 3 ID : **441009624961**
Option 4 ID : **441009624960**
Status : **Answered**
Chosen Option : **1**

Q.65 In the Newton-Raphson method for load flow analysis, the update of voltage magnitudes and angles is performed using:

Ans ✘ 1. the Jacobian matrix without any adjustments for power mismatches

✘ 2. the direct values of real and reactive power at each bus

✔ 3. the inverse of the Jacobian matrix, multiplied by the power mismatches

✘ 4. a linear approximation of the power mismatches for each bus

Question ID : **44100948938**
Option 1 ID : **441009195051**
Option 2 ID : **441009195049**
Option 3 ID : **441009195048**
Option 4 ID : **441009195050**
Status : **Answered**
Chosen Option : **1**

Q.66 What will be the output voltage frequency in a single-phase full wave bridge converter?

Ans ✘ 1. Same as input supply frequency

✘ 2. Zero

✔ 3. Twice the input supply frequency

✘ 4. Four times the input supply frequency

Question ID : **441009147833**
Option 1 ID : **441009587225**
Option 2 ID : **441009587228**
Option 3 ID : **441009587226**
Option 4 ID : **441009587227**
Status : **Answered**
Chosen Option : **3**

Q.67 The balancing equation of the Owen Bridge contains which components?

Ans ✔ 1. Inductance, resistance, and capacitance

✘ 2. Resistance and inductance

✘ 3. Inductance and capacitance

✘ 4. Capacitance and resistance

Question ID : **441009116632**
Option 1 ID : **441009463756**
Option 2 ID : **441009463755**
Option 3 ID : **441009463757**
Option 4 ID : **441009463758**
Status : **Answered**
Chosen Option : **1**

Q.68 Coulomb's law states that the force between two point charges is:

Ans ✗ 1. directly proportional to the square of the distance between them

✗ 2. independent of the medium in which charges are placed

✗ 3. inversely proportional to the product of the charges

✓ 4. inversely proportional to the square of the distance between them

Question ID : **44100989395**
Option 1 ID : **441009355724**
Option 2 ID : **441009355725**
Option 3 ID : **441009355726**
Option 4 ID : **441009355723**
Status : **Answered**
Chosen Option : **4**

Q.69 In a single-phase full wave midpoint converter, _____ commutation is usually employed.

Ans ✓ 1. line

✗ 2. impulse

✗ 3. resonant pulse

✗ 4. load

Question ID : **441009147814**
Option 1 ID : **441009587157**
Option 2 ID : **441009587159**
Option 3 ID : **441009587160**
Option 4 ID : **441009587158**
Status : **Answered**
Chosen Option : **4**

Q.70 Which statements about Star-Star (Y-Y) connections are INCORRECT?

I. Requires a tertiary delta winding for third-harmonic suppression.
II. Neutral is available on both primary and secondary sides.
III. Ideal for heavy unbalanced loads.
IV. Line voltage = phase voltage.

Ans ✗ 1. I and II only

✗ 2. II and III only

✗ 3. I, III and IV only

✓ 4. III and IV only

Question ID : **441009120082**
Option 1 ID : **441009477396**
Option 2 ID : **441009477397**
Option 3 ID : **441009477395**
Option 4 ID : **441009477398**
Status : **Answered**
Chosen Option : **4**