DFCCIL

Previous Year Paper

Executive Electrical

11th Nov 2018 shift 2

Dedicated Freight Corridor Corporation of India Ltd.

A Government of India (Ministry of Railways) Enterprise

डेडीकेटेड फ्रेट कॉरीडोर

Participant ID	
Participant Name	
Test Center Name	
Test Date	11/11/2018
Test Time	12:30 PM - 2:30 PM
Subject	Executive Electrical

Section : **General Aptitude Knowledge**

Q.1 In which state does the greatest number of Uranium mines exist as of September 2018?

Ans
✔ 1. Jharkhand
✘ 2. Odisha
✘ 3. Madhya Pradesh
✘ 4. Chhattisgarh

Question ID : **1860451986**
Status : **Answered**
Chosen Option : **1**

Q.2 National Rail and Transport Institute, India's first railway university has been opened in which of the following states?

Ans
✘ 1. Telangana
✘ 2. Bihar
✔ 3. Gujarat
✘ 4. Uttar Pradesh

Question ID : **1860451992**
Status : **Answered**
Chosen Option : **3**

Q.3 विश्व आर्थिक मंच (2018) द्वारा जारी 74 उभरती अर्थव्यवस्थाओं के समावेशी विकास सूचकांक में भारत का स्थान कौन सा है?

Ans
✘ 1. 42वाँ
✘ 2. 72वाँ
✔ 3. 62वाँ
✘ 4. 52वाँ

Question ID : **1860451993**
Status : **Answered**
Chosen Option : **3**

Q.4 मलेशिया में सितंबर 2018 में आयोजित एक समारोह में, किस राज्य-पर्यटन को अपने अभिनव विपणन अभियानों के लिए प्रशांत एशिया यात्रा एसोसिएशन (पाटा) के दो प्रतिष्ठित स्वर्ण पुरस्कार प्रदान किये गए हैं?

Ans
✘ 1. उत्तर प्रदेश
✔ 2. केरल
✘ 3. गोवा
✘ 4. पश्चिम बंगाल

Question ID : **1860451989**
Status : **Answered**
Chosen Option : **3**

Q.5 ________ of the Constitution of India deals with ________.

Ans

Question ID : **1860451997**
Status : **Answered**

✗ 1. Article 40, fundamental duties

✗ 2. Article 45, uniform civil code

✓ 3. Article 40, organisation of village panchayats

✗ 4. Article 48A, uniform civil code

Chosen Option : 3

Q.6 Which state is the largest producer of wind energy in India?

Ans

✓ 1. Tamil Nadu

✗ 2. Maharashtra

✗ 3. Gujarat

✗ 4. Rajasthan

Question ID : **1860451987**
Status : **Answered**
Chosen Option : **4**

Q.7 In which state has the Government of India launched the first Tribal Circuit Project under the Swadesh Darshan Scheme?

Ans

✗ 1. Jharkhand

✗ 2. Madhya Pradesh

✓ 3. Chhattisgarh

✗ 4. Bihar

Question ID : **1860451990**
Status : **Answered**
Chosen Option : **3**

Q.8 The ray that comes back from a surface after the reflection is known as _____.

Ans

✓ 1. a reflected ray

✗ 2. an x-ray

✗ 3. an incident ray

✗ 4. an alpha ray

Question ID : **1860451995**
Status : **Answered**
Chosen Option : **1**

Q.9 Which Indian boxer won a Gold Medal in Asian Games 2018?

Ans

✗ 1. Manoj Kumar

✓ 2. Amit Panghal

✗ 3. Gaurav Solanki

✗ 4. Shiva Thapa

Question ID : **1860451991**
Status : **Answered**
Chosen Option : **2**

Q.10 Which of the following is correct?

Ans

✓ 1. Sucheta Kriplani was the first woman Chief Minister of Uttar Pradesh.

✗ 2. Nandini Satpathy was the first woman Chief Minister of Uttar Pradesh.

✗ 3. Shashikala Kakodkar was the first woman Chief Minister of Uttar Pradesh.

✗ 4. Janaki Ramachandran was the first woman Chief Minister of Uttar Pradesh.

Question ID : **1860451988**
Status : **Answered**
Chosen Option : **1**

Q.11 जब काँच की एक छड़ को रेशम पर रगड़ा जाता है, तो इसके द्वारा प्राप्त आवेश को परंपरागत रूप से क्या कहा जाता है?

Ans

✓ 1. धनात्मक

Question ID : **1860451994**
Status : **Answered**

✗ 2. ऋणात्मक

✗ 3. तटस्थ

✗ 4. प्राकृतिक

Chosen Option : 1

Q.12 After full moon day, the size of the bright part of the moon appears to become thinner and thinner every night. On the fifteenth day, the moon is not visible. This day is known as the:

Question ID : **1860451996**
Status : **Answered**
Chosen Option : **1**

Ans

✓ 1. New moon day

✗ 2. Moon day

✗ 3. Full moon day

✗ 4. Half-moon day

Section : **Logical Reasoning**

Q.1 दी गई अक्षर श्रृंखला में, रिक्त स्थानों पर किस अक्षर समूह को क्रमिक रूप से रखा जाए, जिस से वह श्रृंखला को पूर्ण करेगा?

_qr_rp_pqp_r_rp

Question ID : **1860451999**
Status : **Answered**
Chosen Option : **2**

Ans

✗ 1. pqqrr

✓ 2. pqrqq

✗ 3. qqqrr

✗ 4. qppqp

Q.2

Question ID : **1860452009**
Status : **Answered**
Chosen Option : **4**

एक प्रतिष्ठित बहु-राष्ट्रीय कंपनी में एक निश्चित पद पर नियुक्ति के लिए निम्नलिखित योग्यताएँ आवश्यक हैं:

A. अभ्यर्थी को 65% अंकों के साथ एमबीए अवश्य होना चाहिए।

B. अभ्यर्थी ने न्यूनतम 50% अंकों के साथ चयन-परीक्षा अवश्य उत्तीर्ण की होनी चाहिए।

C. अभ्यर्थी ने साक्षात्कार में न्यूनतम 65% अंक अवश्य प्राप्त किये हुए हों।

D. अभ्यर्थी की आयु 1 सितंबर 2018 को 23 वर्ष से कम और 30 वर्ष से अधिक नहीं होनी चाहिए।

अभ्यर्थी के मामले में, जो अन्य सभी मानदंडों को पूरा करता है सिवाय:

I. उपरोक्त (A) के, किंतु वह 50% अंक प्राप्तकर्ता इंजीनियर है, तो मामले को निदेशक, भर्ती के लिए संदर्भित किया जा सकता है।

II. उपरोक्त (B) के, किंतु उसे कार्यकारी अधिकारी के रूप में कार्य करने का न्यूनतम 2 वर्षों का अनुभव है, तो मामले को सभापती, भर्ती समिति को संदर्भित किया जा सकता है।

नीचे एक अभ्यर्थी के संबंध में जानकारी दी गई है। उपरोक्त मानदंडों और शर्तों के संदर्भ में इसका विश्लेषण करें और फिर उचित कार्रवाई का निर्णय लें। आपको दी गई जानकारी के अतिरिक्त कुछ भी नहीं मानना है।

श्वेता शर्मा ने यांत्रिक अभियांत्रिकी (मैकेनिकल इंजीनियरिंग) पूर्ण करने के पश्चात् मुक्त-विद्यालय (ओपन स्कूल) के माध्यम से एमबीए किया। उसने एमबीए में 55% अंक और अभियांत्रिकी (इंजीनियरिंग) पाठ्यक्रम में 75% अंक प्राप्त किये। उसने चयन परीक्षा में 65% अंक और साक्षात्कार में 70% अंक प्राप्त किये। उसकी जन्म तिथि 25 दिसंबर 1992 है।

Ans

✔ 1. यह मामला निदेशक, भर्ती को संदर्भित किया जाना है।

✘ 2. अभ्यर्थी का चयन किया जाना है।

✘ 3. यह मामला सभापती, भर्ती समिति को संदर्भित किया जाना है।

✘ 4. अभ्यर्थी का चयन नहीं किया जाना है।

Q.3 In a code language, 'W●RK' is written as 'X●SL' and 'TIME' is written as 'UTNF'. How will 'SALARY' be written?

Ans

✘ 1. TAMASY

✔ 2. TAMASZ

✘ 3. TAMBSZ

✘ 4. TBMBSZ

Question ID : **1860452006**
Status : **Answered**
Chosen Option : **2**

Q.4 Eight friends P, Q, R, S, T, U, V and W are sitting around a circular table. U is on the immediate right of Q. V is the neighbour of T. R is between T and U. W is on the immediate left of P but is not the neighbour of T or S. What is the position of S?

Ans

✘ 1. Between Q and U

Question ID : **1860452001**
Status : **Answered**
Chosen Option : **2**

2. On the immediate left of Q

3. On the immediate left of P

4. Second to the right of U

Q.5 दिये गए कथनों को सत्य मानें, भले ही वे तथ्यात्मक रूप से अर्थहीन हों, और निर्णय लें कि कौन सा/ कौन से निष्कर्ष तर्कसंगत रूप से कथनों का अनुसरण करता/करते है/हैं।

कथन:

सभी अधिकारी स्नातक हैं। सभी लिपिक स्नातक हैं।

निष्कर्ष:

I. कुछ स्नातक अधिकारी हैं।

II. सभी स्नातक अधिकारी हैं।

Question ID : **1860452002**
Status : **Answered**
Chosen Option : **1**

Ans

1. केवल निष्कर्ष I अनुसरण करता है।

2. निष्कर्ष I और निष्कर्ष II, दोनों ही अनुसरण करते हैं।

3. केवल निष्कर्ष II अनुसरण करता है।

4. न तो निष्कर्ष I और न ही निष्कर्ष II अनुसरण करते हैं।

Q.6 The equal number of houses on both sides of the street are numbered 1, 2, 3, 4, ..up one side, then back down the other side. If house number nine (9) is opposite house number 24, then how many houses are there on the street?

Question ID : **1860452004**
Status : **Answered**
Chosen Option : **2**

Ans

1. 36

2. 30

3. 32

4. 34

Q.7

Question ID : **1860452008**
Status : **Answered**
Chosen Option : **1**

एक प्रतिष्ठित बहु-राष्ट्रीय कंपनी में, एक निश्चित पद पर नियुक्ति के लिए निम्नलिखित योग्यताएँ आवश्यक हैं:

A. अभ्यर्थी को न्यूनतम 65% अंकों के साथ एमबीए अवश्य होना चाहिए।

B. अभ्यर्थी ने न्यूनतम 50% अंकों के साथ चयन-परीक्षा उत्तीर्ण अवश्य की होनी चाहिए।

C. अभ्यर्थी ने साक्षात्कार में न्यूनतम 65% अंक अवश्य प्राप्त किये हुए हों।

D. अभ्यर्थी की आयु 1 सितंबर 2018 को 23 वर्ष से कम और 30 वर्ष से अधिक नहीं होनी चाहिए।

अभ्यर्थी के मामले में जो अन्य सभी मानदंडों को पूरा करता है सिवाय:

I. उपरोक्त (A) के, किंतु वह 50% अंक प्राप्तकर्ता इंजीनियर है, तो मामले को निदेशक, भर्ती के लिए संदर्भित किया जा सकता है।

II. उपरोक्त (B) के, किंतु उसे कार्यकारी अधिकारी के रूप में कार्य करने का कम से कम 2 वर्ष का अनुभव है, तो मामले को सभापती, भर्ती समिति को संदर्भित किया जा सकता है।

नीचे एक अभ्यर्थी के संबंध में जानकारी दी गई है। उपरोक्त मानदंडों और शर्तों के संदर्भ में इसका विश्लेषण करें और फिर उचित कार्रवाई का निर्णय लें। आपको दी गई जानकारी के अतिरिक्त कुछ भी नहीं मानना है।

सोहेल सिंह 76% अंकों के साथ एमबीए है। वह दिसंबर 2016 से अपने चाचा की फ़र्म में एक कार्यकारी अधिकारी के रूप में कार्य कर रहा है। उसने चयन परीक्षा में 72% अंक और साक्षात्कार में 70% अंक प्राप्त किये हैं। उसकी जन्म तिथि 14 अगस्त 1993 है।

Ans
✔ 1. अभ्यर्थी का चयन किया जाना है।
✗ 2.
यह मामला सभापती, भर्ती समिति को संदर्भित किया जाना है।
✗ 3. अभ्यर्थी का चयन नहीं किया जाना है।
✗ 4.
यह मामला निदेशक, भर्ती को संदर्भित किया जाना है।

Q.8 In a class test of 45 students, one student is ranked 25th. What is his rank from the bottom?

Question ID : **1860452005**
Status : **Answered**
Chosen Option : **1**

Ans
✔ 1. 21^{st}
✗ 2. 25^{th}
✗ 3. 20^{th}
✗ 4. 22^{nd}

Q.9 Select the option that is related to the third term in the same way as the second term is related to the first term.
5 : 216 :: 7 : ?

Question ID : **1860451998**
Status : **Answered**
Chosen Option : **4**

Ans
✗ 1. 343
✗ 2. 196

✗ 3. 729

✓ 4. 512

Q.10 From the given alternatives select the word which CANNOT be formed using the letters of the given word.

APPRECIATE

Question ID : **1860452003**
Status : **Answered**
Chosen Option : **3**

Ans

✗ 1. RECEIPT

✗ 2. PRECEPT

✓ 3. CREATOR

✗ 4. APPEAR

Q.11 Select the number pair which is different from the other three responses.

Question ID : **1860452007**
Status : **Answered**
Chosen Option : **4**

Ans

✗ 1. 19, 132

✗ 2. 39, 272

✗ 3. 31, 216

✓ 4. 23, 161

Q.12 निम्नलिखित संख्या अनुक्रम में ऐसी कितनी सम संख्याएँ हैं जिनमें से प्रत्येक के तुरंत पश्चात् एक विषम संख्या और ठीक पहले एक सम संख्या है?

4 8 7 6 8 9 5 6 9 5 7 8 4 6 9 5 5 8 8 6 7 7 9

Question ID : **1860452000**
Status : **Answered**
Chosen Option : **4**

Ans

✗ 1. एक

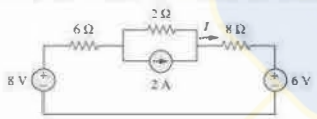
✗ 2. दो

✗ 3. तीन

✓ 4. चार

Section : **Circuit Analysis**

Q.1 Calculate current I in the following circuit using super position theorem.



Question ID : **1860452033**
Status : **Answered**
Chosen Option : **1**

Ans

✓ 1. 375 mA

✗ 2. 200 mA

✗ 3. 150 mA

✗ 4. 100 mA

Q.2 A 230 V lamp is rated to pass a current of 0.24 A. Calculate its power output. If a second similar lamp is connected in parallel to the lamp, calculate the supply current required to give the same power output in each lamp.

Question ID : **1860452027**
Status : **Answered**
Chosen Option : **4**

Ans

✗ 1. 0.24 A

✗ 2. 1.5 A

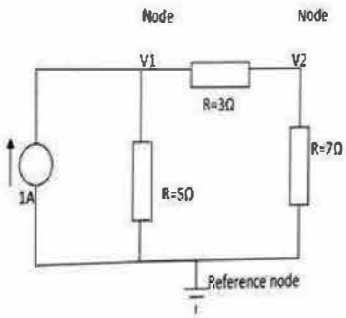
✗ 3. 1.9 A

✓ 4. 0.48 A

Q.3

Question ID : **1860452016**
Status : **Answered**
Chosen Option : **2**

The value of voltages V_1 and V_2 for the circuit shown below is:
(Use Nodal Analysis)



Ans
1. 7/10 V, 3/7 V
2. 10/3 V, 7/3 V
3. 3/10 V, 3/7 V
4. 1/7 V, 3/4 V

Q.4 If two capacitors having capacitances of 5 μF and 10 μF respectively are connected in series across a 200 V supply, find the potential difference across each capacitor.

Question ID : **1860452032**
Status : **Answered**
Chosen Option : **2**

Ans
1. 50 V, 100 V
2. 133.33 V, 66.66 V
3. 200 V, 100 V
4. 100 V, 200 V

Q.5 A heater takes a current of 7 A from a 230 V source for 12 h. Calculate the energy consumed (in kWh).

Question ID : **1860452028**
Status : **Answered**
Chosen Option : **4**

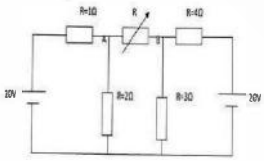
Ans
1. 2.76 kWh
2. 1.61 kWh
3. 38.64 kWh
4. 19.32 kWh

Q.6 For the network junction shown in the figure, calculate the current I_3, given that $I_1 = 3$ A, $I_2 = 4$ A and $I_4 = 2$ A.

Question ID : **1860452026**
Status : **Answered**
Chosen Option : **1**

Ans
1. 3 A
2. 4 A
3. 2 A
4. 6 A

Q.7 The value of R, for which the maximum power transferred across AB of the circuit shown in the figure below is:



Question ID : **1860452018**
Status : **Answered**
Chosen Option : **3**

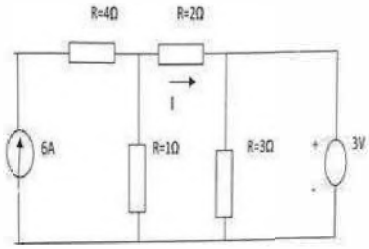
Ans
1. 23.8 Ω
2. 238 Ω

✔ 3. 2.38 Ω

✘ 4. 3 Ω

Q.8 For the circuit shown in the figure, the value of current 'I' is ____.

Question ID : **1860452019**
Status : **Answered**
Chosen Option : **1**



Ans

✔ 1. 1 A

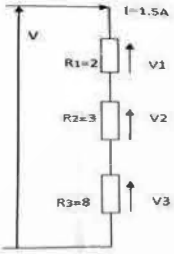
✘ 2. 2 A

✘ 3. 3 A

✘ 4. Zero

Q.9 For the figure shown below, the value of the supply voltage 'V' is ____.

Question ID : **1860452010**
Status : **Answered**
Chosen Option : **3**



Ans

✘ 1. 12 V

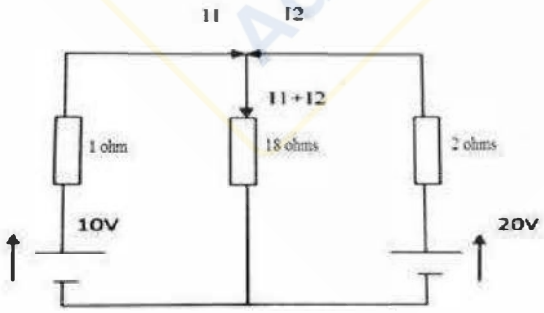
✘ 2. 4.5 V

✔ 3. 19.5 V

✘ 4. 3 V

Q.10 The value of currents in the network shown below is:

Question ID : **1860452015**
Status : **Answered**
Chosen Option : **3**



Ans

✘ 1. 2.85 A, 3.57 A, 0.72 A

✘ 2. 2.85 A, -3.57 A, -0.72 A

✔ 3. -2.85 A, 3.57 A, 0.72 A

✗ 4. 2 A, 4 A, 6 A

Q.11 A conductor of 0.5 mm diameter wire has a resistance of 400 Ω. Find the resistance of the same length of wire if it's diameter were doubled.

Question ID : **1860452030**
Status : **Answered**
Chosen Option : **3**

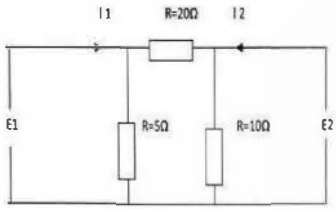
Ans
✗ 1. 150 Ω
✗ 2. 50 Ω
✓ 3. 100 Ω
✗ 4. 200 Ω

Q.12 A resistance of 10 Ω is connected in series with two resistances, each of 15 Ω arranged in parallel. What resistance must be shunted across this parallel combination so that the total current taken shall be 1.5 A with 20 V applied voltage?

Question ID : **1860452024**
Status : **Answered**
Chosen Option : **3**

Ans
✗ 1. 8 Ω
✗ 2. 12 Ω
✗ 3. 5 Ω
✓ 4. 6 Ω

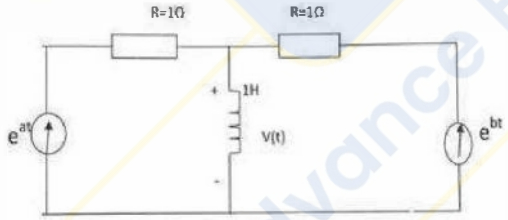
Q.13 The value of admittance parameter Y_{12} for the two-port network shown in the figure is:



Question ID : **1860452020**
Status : **Answered**
Chosen Option : **1**

Ans
✓ 1. -0.05 mho
✗ 2. 0.1 mho
✗ 3. -0.2 mho
✗ 4. 0.05 mho

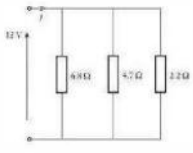
Q.14 For the circuit shown in the figure, the value of voltage v(t) is:



Question ID : **1860452022**
Status : **Answered**
Chosen Option : **1**

Ans
✓ 1. $ae^{at} + be^{bt}$
✗ 2. $e^{at} + e^{bt}$
✗ 3. $e^{at} - e^{bt}$
✗ 4. $ae^{at} - be^{bt}$

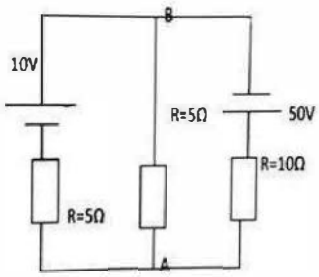
Q.15 For the network shown in the figure, calculate the effective resistance and the supply current.



Question ID : **1860452025**
Status : **Answered**
Chosen Option : **1**

Ans
1. 1.23 Ω, 9.76 A
2. 1.23 Ω, 4.88 A
3. 13.7 Ω, 4.88 A
4. 6.8 Ω, 9.76 A

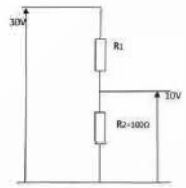
Q.16 For the circuit shown in the figure, the value of voltage V_{AB} is ____.



Question ID : **1860452021**
Status : **Answered**
Chosen Option : **4**

Ans
1. 40 V
2. 25 V
3. 10 V
4. 6 V

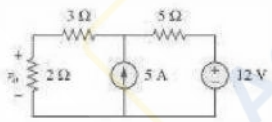
Q.17 A voltage divider is to give an output voltage of 10 V from an input voltage of 30 V as shown in the figure. Given R_2=100 Ω. The value of resistance R_1 is:



Question ID : **1860452011**
Status : **Answered**
Chosen Option : **2**

Ans
1. 150 Ω
2. 200 Ω
3. 100 Ω
4. 300 Ω

Q.18 Find v_o in the following circuit using super position theorem.



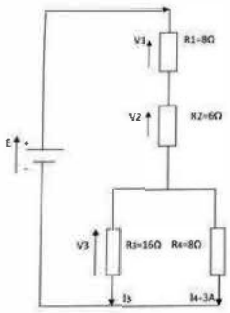
Question ID : **1860452031**
Status : **Answered**
Chosen Option : **3**

Ans
1. 10 V
2. 12 V
3. 7.4 V
4. 4.6 V

Q.19

Question ID : **1860452014**
Status : **Answered**
Chosen Option : **3**

For the network shown in figure, the value of supply current and source emf is:



Ans

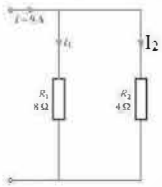
✗ 1. 4.5 A, 36 V

✗ 2. 1.5 A, 27 V

✓ 3. 4.5 A, 87 V

✗ 4. 1.5 A, 36 V

Q.20 For the network shown in the figure, calculate the power developed by resistor R_1 and R_2 respectively.



Question ID : **1860452029**
Status : **Answered**
Chosen Option : **4**

Ans

✗ 1. 160 W, 80 W

✗ 2. 80 W, 160 W

✗ 3. 140 W, 72 W

✓ 4. 72 W, 140 W

Q.21 एक केबल में दो कंडक्टर हैं, जो कि परीक्षण के हेतुओं के लिए केबल के एक छोर पर इक साथ जोड़े गए हैं। जब केबल 700 m लम्बा हो, तब दूसरे छोर से नापने पर संयोजित लूप का रेसिस्टेंस 100 Ω पाया गया। 8 km लंबी समान केबल के रेसिस्टेंस का मूल्य _____ है।

Question ID : **1860452013**
Status : **Not Answered**
Chosen Option : **--**

Ans

✗ 1. 1,100 Ω

✗ 2. 1,134 Ω

✗ 3. 1,200 Ω

✓ 4. 1,143 Ω

Q.22 A coil of resistance 20 Ω and inductance 10 mH is in series with a capacitance and is supplied with a constant voltage, variable frequency source. The maximum current is 2 A at 1000 Hz. The Q-factor of the circuit is ____.

Question ID : **1860452023**
Status : **Answered**
Chosen Option : **2**

Ans

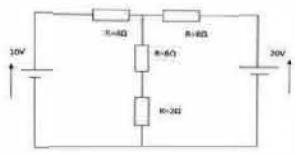
✗ 1. 31.8

✓ 2. 3.14

✗ 3. 314

✗ 4. 31.4

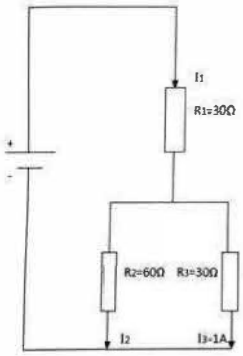
Q.23 The value of potential difference across the 2 Ω resistor for the network shown below is:



Question ID : **1860452017**
Status : **Answered**
Chosen Option : **4**

Ans
1. 2.8 V
2. 10.1 V
3. 5.2 V
4. 2.1 V

Q.24 For the circuit shown in the figure below, the value of currents I_1 and I_2 is:



Question ID : **1860452012**
Status : **Answered**
Chosen Option : **4**

Ans
1. 2.5 A, 1.5 A
2. 3 A, 2.5 A
3. 1 A, 1.5 A
4. 1.5 A, 0.5 A

Section : **Machines**

Q.1 A transformer has 400 W as iron loss at full load. The iron loss at half full load will be ____.

Question ID : **1860452044**
Status : **Answered**
Chosen Option : **1**

Ans
1. 400 W
2. 800 W
3. 100 W
4. 200 W

Q.2 A two-pole alternator is running at 1,500 rpm. Its angular velocity will be ____.

Question ID : **1860452053**
Status : **Answered**
Chosen Option : **2**

Ans
1. 192 rad/s
2. 157 rad/s
3. 212 rad/s
4. 118 rad/s

Q.3 In a split-phase induction motor, the two stator windings ____.

Question ID : **1860452052**
Status : **Answered**
Chosen Option : **3**

Ans
1. have equal R/X_L ratio
2. draw only the in-phase currents
3. are mutually displaced by 90° electrically
4. draw equal currents

Q.4 Core lamination in a transformer decreases ____.

Question ID : **1860452041**
Status : **Answered**
Chosen Option : **1**

Ans
1. eddy current loss
2. hysteresis loss

✗ 3. copper loss

✗ 4. leakage reactance

Q.5 A three-phase induction motor is running at 4% slip. If the input to the rotor is 1,000 W, then the mechanical power developed by the motor will be ____.

Question ID : **1860452048**
Status : **Answered**
Chosen Option : **1**

Ans
✓ 1. 960 W

✗ 2. 9,600 W

✗ 3. 96 W

✗ 4. 0.96 W

Q.6 The armature of a DC machine is placed on the rotor to ____.

Question ID : **1860452034**
Status : **Answered**
Chosen Option : **3**

Ans
✗ 1. reduce losses

✗ 2. save iron

✓ 3. support commutation

✗ 4. decrease armature reaction

Q.7 A washing machine generally employs a _____ motor.

Question ID : **1860452051**
Status : **Answered**
Chosen Option : **3**

Ans
✗ 1. shaded pole

✓ 2. resistance split phase

✗ 3. single-phase series

✗ 4. hysteresis

Q.8 An open circuit test on a transformer gives ____.

Question ID : **1860452040**
Status : **Answered**
Chosen Option : **2**

Ans
✗ 1. friction losses

✓ 2. iron losses

✗ 3. total losses

✗ 4. copper losses

Q.9 In a 6-pole DC machine, 90 mechanical degrees corresponds to how many electrical degrees?

Question ID : **1860452057**
Status : **Answered**
Chosen Option : **1**

Ans
✓ 1. 270

✗ 2. 180

✗ 3. 30

✗ 4. 45

Q.10 A _____ motor runs at the highest speed when the load is removed.

Question ID : **1860452037**
Status : **Answered**
Chosen Option : **2**

Ans
✗ 1. cumulatively compound

✓ 2. series

✗ 3. shunt

✗ 4. differentially compound

Q.11 The magnetic flux path in a transformer must have ____.

Question ID : **1860452054**
Status : **Answered**

Ans
✗ 1. high resistance

2. low resistance
3. high reluctance
4. low reluctance

Chosen Option : 4

Q.12 Leakage flux in a transformer ____.

Question ID : **1860452042**
Status : **Answered**
Chosen Option : **3**

Ans
1. helps in the transfer of energy
2. produces mutually-induced emf
3. is minimised by interleaving the primary and secondary windings
4. is negligible at full load

Q.13 The primary of a ____ should never be energised when its secondary is open circuited.

Question ID : **1860452043**
Status : **Answered**
Chosen Option : **2**

Ans
1. potential transformer
2. current transformer
3. autotransformer
4. power transformer

Q.14 For a simplex wave wound generator, emf generated path is given by ____.

Φ : Flux/ pole in Weber
Z : Total number of armature conductors
P : Number of generator poles
N : Armature rotation in revolution per minute (rpm)

Question ID : **1860452056**
Status : **Answered**
Chosen Option : **2**

Ans
1. (ϕPN)/120
2. (ϕZPN)/120
3. (ϕZPN)/180
4. (ϕZN)/60

Q.15 Three-phase wound rotor motors are commonly called as ____ motors.

Question ID : **1860452047**
Status : **Answered**
Chosen Option : **3**

Ans
1. Synchronous
2. Commutator
3. Slip ring
4. Series

Q.16 Running the machine at no load is NOT recommended for a/an ____.

Question ID : **1860452038**
Status : **Answered**
Chosen Option : **4**

Ans
1. induction motor
2. DC shunt motor
3. synchronous motor
4. DC series motor

Q.17 ___ is a type of single-phase motor which has the lowest speed.

Question ID : **1860452050**
Status : **Answered**
Chosen Option : **3**

Ans
1. Hysteresis
2. Universal

✔ 3. Shaded pole

✘ 4. Repulsion

Q.18 A capacitor-start motor has a _____.

Question ID : **1860452049**
Status : **Answered**
Chosen Option : **4**

Ans

✘ 1. high starting torque

✘ 2. low efficiency

✘ 3. low power factor

✔ 4. high power factor

Q.19 The open-circuit characteristic of a DC generator is also called as _____ characteristics.

Question ID : **1860452035**
Status : **Answered**
Chosen Option : **1**

Ans

✘ 1. internal

✘ 2. performance

✘ 3. external

✔ 4. no load saturation

Q.20 The direction of rotation of field in a three-phase induction motor depends on the ____.

Question ID : **1860452045**
Status : **Answered**
Chosen Option : **4**

Ans

✘ 1. supply voltage

✘ 2. number of poles

✘ 3. supply frequency

✔ 4. phase sequence of supply voltage

Q.21 The function of dummy coils in DC machines is to ____.

Question ID : **1860452036**
Status : **Answered**
Chosen Option : **3**

Ans

✘ 1. improve commutation

✘ 2. reduce machine cost

✔ 3. mechanically balance the armature

✘ 4. increase efficiency

Q.22 To obtain greater efficiency, the slip of an induction motor should be ____.

Question ID : **1860452046**
Status : **Answered**
Chosen Option : **1**

Ans

✔ 1. low

✘ 2. very high

✘ 3. high

✘ 4. 1

Q.23 The current drawn by a 220 V DC motor of armature resistance 0.5 Ω and back emf 180 V is ____.

Question ID : **1860452039**
Status : **Answered**
Chosen Option : **2**

Ans

✘ 1. 0.8 A

✔ 2. 80 A

✘ 3. 8 A

✘ 4. 18 A

Q.24 The magnetic flux density on the surface of an iron face is 1.5 T, which is the typical saturation level value of ferromagnetic material. Find the force density on the iron face.

Question ID : **1860452055**
Status : **Not Answered**

Ans

Chosen Option : --

1. $0.59 * 10^6$ N/m^2
2. $0.89 * 10^6$ N/m
3. $0.59 * 10^6$ N/m
4. $0.89 * 10^6$ N/m^2

Section : **Electronics**

Q.1 How many diodes are used to construct half wave, full wave and bridge rectifier circuits, respectively?

Question ID : **1860452073**
Status : **Answered**
Chosen Option : **4**

Ans
1. 2,1,4
2. 2,4,1
3. 4,1,2
4. 1,2,4

Q.2 If the resolution of a digital-to-analogue converter is approximately 0.4% of its full scale range, then it is a an ____.

Question ID : **1860452064**
Status : **Answered**
Chosen Option : **3**

Ans
1. 16-bit converter
2. 10-bit converter
3. 8-bit converter
4. 12-bit converter

Q.3 The product of the two binary numbers 011 and 110 is:

Question ID : **1860452066**
Status : **Answered**
Chosen Option : **3**

Ans
1. 01110
2. 11001
3. 10010
4. 11100

Q.4 Among the following, which is a fixed frequency oscillator?

Question ID : **1860452063**
Status : **Answered**
Chosen Option : **1**

Ans
1. Crystal oscillator
2. Phase-shift oscillator
3. Hartley oscillator
4. Colpitt's oscillator

Q.5 The circuit which produces the best stabilisation of an operating point is ____.

Question ID : **1860452060**
Status : **Answered**
Chosen Option : **4**

Ans
1. base bias
2. collector feedback
3. emitter bias
4. voltage divider

Q.6 The output and input voltages of an emitter-follower have a phase difference of ___.

Question ID : **1860452062**
Status : **Answered**
Chosen Option : **1**

Ans
1. 0°
2. 270°
3. 90°
4. 180°

Q.7 A+AB gets simplified to:

Question ID : **1860452068**
Status : **Answered**
Chosen Option : **4**

Ans
✗ 1. AB
✗ 2. B
✗ 3. A+B
✓ 4. A

Q.8 In a certain transistor, the emitter current is 1.04 times the collector current. If the emitter current is 12 mA, calculate the base current.

Question ID : **1860452071**
Status : **Answered**
Chosen Option : **1**

Ans
✓ 1. 462 μA
✗ 2. 11.538 mA
✗ 3. 462 mA
✗ 4. 11.538 μA

Q.9 State the respective ripple factor and efficiency of a full wave rectifier.

Question ID : **1860452072**
Status : **Answered**
Chosen Option : **4**

Ans
✗ 1. 0.40, 80%
✗ 2. 1.21, 40.1 %
✗ 3. 0.81, 48%
✓ 4. 0.48, 81.2 %

Q.10 State the octal equivalent of hexa decimal number $(B34)_{16}$.

Question ID : **1860452074**
Status : **Answered**
Chosen Option : **3**

Ans
✗ 1. $(6454)_8$
✗ 2. $(4564)_8$
✓ 3. $(5464)_8$
✗ 4. $(5645)_8$

Q.11 Zener diodes are used as ____.

Question ID : **1860452059**
Status : **Answered**
Chosen Option : **1**

Ans
✓ 1. voltage regulators
✗ 2. amplifiers
✗ 3. oscillators
✗ 4. rectifiers

Q.12 State the correct condition for transistor to operate in cut-off region.

Question ID : **1860452070**
Status : **Answered**
Chosen Option : **4**

Ans
✗ 1. Emitter base junction: forward bias
Collector base junction: forward bias
✗ 2. Emitter base junction: reverse bias
Collector base junction: forward bias
✗ 3. Emitter base junction: forward bias
Collector base junction: reverse bias
✓ 4. Emitter base junction: reverse bias
Collector base junction: reverse bias

Q.13

Voltage regulation is given by:

V_{NL}: Voltage at no load
V_{FL}: Voltage at full load

Question ID : **1860452075**
Status : **Answered**
Chosen Option : **2**

Ans
1. ✗ $((V_{NL} + V_{FL})/(V_{NL})) * 100\%$
2. ✗ $((V_{NL} - V_{FL})/(V_{NL})) * 100\%$
3. ✓ $((V_{NL} - V_{FL})/(V_{FL})) * 100\%$
4. ✗ $((V_{NL} + V_{FL})/(V_{FL})) * 100\%$

Q.14 The charge carriers which have the greatest mobility are the ____.

Question ID : **1860452058**
Status : **Answered**
Chosen Option : **1**

Ans
1. ✓ electrons
2. ✗ positive ions
3. ✗ holes
4. ✗ negative ions

Q.15 The ideal value of CMRR is ____.

Question ID : **1860452065**
Status : **Answered**
Chosen Option : **4**

Ans
1. ✗ $-\infty$
2. ✗ 1
3. ✗ 0
4. ✓ ∞

Q.16 State the respective decimal equivalent and hexa decimal equivalent of $(65)_8$.

Question ID : **1860452069**
Status : **Answered**
Chosen Option : **1**

Ans
1. ✓ 53, 35
2. ✗ 46, 65
3. ✗ 65, 46
4. ✗ 35, 53

Q.17 The lower and upper cut-off frequencies are also called as_____ frequencies.

Question ID : **1860452061**
Status : **Answered**
Chosen Option : **4**

Ans
1. ✗ half resonant
2. ✓ half power
3. ✗ resonant
4. ✗ side band

Q.18 The binary equivalent of decimal 22 is:

Question ID : **1860452067**
Status : **Answered**
Chosen Option : **1**

Ans
1. ✓ 10110
2. ✗ 10001
3. ✗ 11010
4. ✗ 11111

Section : **Measurement**

Q.1 Electrostatic-type instruments are primarily used as:

Question ID : **1860452086**

Ans
1. wattmeters
2. ohmmeters
3. voltmeters
4. ammeters

Status : **Answered**
Chosen Option : **3**

Q.2 Integrating meters are used for the measurement of:

Ans
1. current
2. phase
3. energy
4. voltage

Question ID : **1860452079**
Status : **Answered**
Chosen Option : **3**

Q.3 To ensure safety, what should be the resistance of the earthing electrode?

Ans
1. high
2. low
3. safety does not depend on resistance
4. medium

Question ID : **1860452083**
Status : **Answered**
Chosen Option : **2**

Q.4 An electrodynamometer type of instruments find its major use as:

Ans
1. both, a standard instrument and a transfer instrument
2. a transfer instrument only
3. a standard instrument only
4. a type of indicator instrument

Question ID : **1860452082**
Status : **Answered**
Chosen Option : **1**

Q.5 A 741 Op-Amp has:

Ans
1. 8 pins
2. 9 pins
3. 7 pins
4. 6 pins

Question ID : **1860452084**
Status : **Answered**
Chosen Option : **1**

Q.6 The number of basic SI units is:

Ans
1. 6
2. 5
3. 4
4. 7

Question ID : **1860452081**
Status : **Answered**
Chosen Option : **4**

Q.7 The material of wires used for making standard resistances is usually:

Ans
1. magnanin
2. phosphor bronze
3. nichrome

Question ID : **1860452085**
Status : **Answered**
Chosen Option : **1**

✗ 4. copper

Q.8 Megger is essentially a:

Question ID : **1860452076**
Status : **Answered**
Chosen Option : **2**

Ans
✗ 1. dynamometer
✓ 2. mega-ohmmeter
✗ 3. series-type ohmmeter
✗ 4. shunt-type ohmmeter

Q.9 Air friction damping is used in a/an ____ instrument.

Question ID : **1860452080**
Status : **Answered**
Chosen Option : **3**

Ans
✗ 1. hot wire
✗ 2. induction
✓ 3. moving iron
✗ 4. moving coil

Q.10 The two-part tariff is used for ___ consumers.

Question ID : **1860452087**
Status : **Answered**
Chosen Option : **1**

Ans
✗ 1. domestic
✗ 2. commercial
✓ 3. industrial
✗ 4. agricultural

Q.11 The ____bridge is frequency sensitive.

Question ID : **1860452078**
Status : **Answered**
Chosen Option : **1**

Ans
✓ 1. Wien
✗ 2. Anderson
✗ 3. Wheatstone
✗ 4. Maxwell

Q.12 Which bridge is used to measure the inductance of a high Q inductor?

Question ID : **1860452077**
Status : **Answered**
Chosen Option : **2**

Ans
✗ 1. Anderson
✓ 2. Hay
✗ 3. Maxwell
✗ 4. Wien

Section : **Control System**

Q.1 Which of the following is correct for over-damped and under-damped system, respectively?

Question ID : **1860452093**
Status : **Answered**
Chosen Option : **2**

Ans
✗ 1. $\xi = 0, \xi = -1$
✓ 2. $\xi > 1, 0 < \xi < 1$
✗ 3. $\xi > 1, \xi =$ ●
✗ 4. $0 < \xi < 1, \xi = -1$

Q.2 Any physical system that does NOT automatically correct for variation in its output is a/an:

Question ID : **1860452088**

1. open-loop system ✔
2. closed-loop system ✘
3. stable system ✘
4. unstable system ✘

Status : **Answered**
Chosen Option : **1**

Q.3 Determine the stability of system:

s^3+s^2+s+4

Question ID : **1860452092**
Status : **Answered**
Chosen Option : **3**

Ans
1. Absolutely stable ✘
2. Critically stable ✘
3. Unstable ✔
4. Marginally stable ✘

Q.4 The phase shift of a second-order system with a transfer function $1/s^2$ is:

Question ID : **1860452090**
Status : **Answered**
Chosen Option : **4**

Ans
1. 180° ✔
2. 90° ✘
3. − 90° ✘
4. − 180° ✘

Q.5 The frequency at which the phase angle is 180° is called the _____frequency.

Question ID : **1860452089**
Status : **Answered**
Chosen Option : **3**

Ans
1. break ✘
2. critical ✘
3. phase cross-over ✔
4. cut-off ✘

Q.6 Determine transfer function if the impulse response is e^{-2t}.

Question ID : **1860452091**
Status : **Answered**
Chosen Option : **1**

Ans
1. $1/(s+2)$ ✔
2. $1/(s-2)$ ✘
3. $1/(s+2)^2$ ✘
4. $1/(s-2)^2$ ✘

Section : **Material system**

Q.1 ___is a material that is used to make cable sheaths.

Question ID : **1860452094**
Status : **Answered**
Chosen Option : **3**

Ans
1. Aluminium ✘
2. Copper ✘
3. Lead ✔
4. Cast iron ✘

Q.2 What is the coordination number of a body-centred cubic structure?

Question ID : **1860452095**
Status : **Answered**

Ans

1. 8
2. 4
3. 6
4. 12

Chosen Option : 3

Q.3 Which of the following is NOT an example of a semiconductor material?

Ans
1. Silicon
2. Copper
3. Germanium
4. Arsenic

Question ID : **1860452098**
Status : **Answered**
Chosen Option : **2**

Q.4 Which of the following is an example of a monoclinic system?

Ans
1. SiO_2
2. CaF_2
3. $FeSO_4$
4. Nacl

Question ID : **1860452096**
Status : **Answered**
Chosen Option : **4**

Q.5 What is the atomic packing factor for BCC and FCC, respectively?

Ans
1. 0.52, 0.78
2. 0.74, 0.68
3. 0.52, 0.74
4. 0.68, 0.74

Question ID : **1860452097**
Status : **Answered**
Chosen Option : **4**

Q.6 State the electronic configuration of Argon.

Ans
1. $1s^2 2p^2 2p^6 3s^2 3p^6$
2. $1s^2 2s^2 2s^6 3p^2 3p^6$
3. $1s^2 2s^2 2p^6 3s^2 3p^6$
4. $1s^2 2p^2 2p^6 3s^2 3s^6$

Question ID : **1860452099**
Status : **Answered**
Chosen Option : **3**

Section : **Rest**

Q.1 The maximum firing angle that can be obtained by a pure resistive trigger circuit used in phase control circuit is:

Ans
1. 180°
2. 90°
3. 45°
4. 135°

Question ID : **1860452102**
Status : **Answered**
Chosen Option : **1**

Q.2 Buchholz relay is a/an:

Ans
1. oil temperature-actuated relay
2. gas-actuated relay

Question ID : **1860452101**
Status : **Answered**
Chosen Option : **2**

✗ 3. current-actuated relay

✗ 4. oil-actuated relay

Q.3 HRC fuses provide the best protection against:

Question ID : **1860452100**
Status : **Answered**
Chosen Option : **2**

Ans
✗ 1. sparking

✓ 2. short circuit

✗ 3. fire

✗ 4. lightning

Q.4 _____combined together are called stray losses.

Question ID : **1860452104**
Status : **Answered**
Chosen Option : **3**

Ans
✗ 1. Frictional loss and copper loss

✗ 2. Field copper loss and iron loss

✓ 3. Iron and mechanical losses

✗ 4. Copper and iron losses

Q.5 Two coils in differential connection have self-inductance of 2 mH and 4 mH and a mutual inductance of 0.15 mH. The equivalent inductance of the combination will be:

Question ID : **1860452103**
Status : **Answered**
Chosen Option : **3**

Ans
✗ 1. 5.9 mH

✗ 2. 6.5 mH

✓ 3. 5.7 mH

✗ 4. 7 mH

Q.6 When the gain margin is positive and phase margin is negative, the system is:

Question ID : **1860452105**
Status : **Answered**
Chosen Option : **1**

Ans
✗ 1. unstable

✗ 2. highly stable

✗ 3. oscillatory

✓ 4. stable