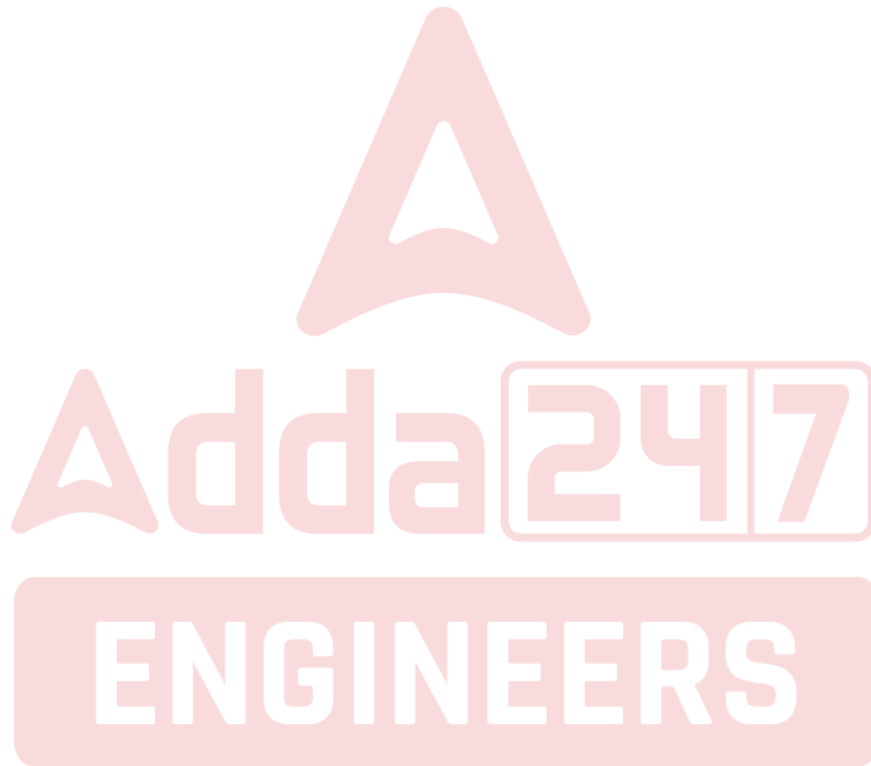


**DFCCIL**

**Previous Year Paper**  
**Executive (Electrical)**  
**11 Nov, 2018 Shift 2**



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** मशैशिया में सितंबर 2018 में आयोजित एक समारोह में, किस राज्य-पर्यटन को अपने अभिलेख निपणन अभियानों के लिए प्रशासक एशिया यात्रा एसोसिएशन (याटा) 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:

- Ans**  1. New moon day
2. Moon day
3. Full moon day
4. Half-moon day

Question ID : 1860451996

Status : Answered

Chosen Option : 1

## 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

- Ans**  1. pqrr
2. pqrqq
3. qqrr
4. qppqp

Question ID : 1860451999

Status : Answered

Chosen Option : 2

Q.2

Question ID : 1860452009

Status : Answered

Chosen Option : 4

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ENGINEERS

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, 'WORK' is written as 'XOSL' and 'TIME' is written as 'UINE'. 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 हैं/हैं।

कथन:

सभी अधिकारी स्नातक हैं। सभी लिपिक स्नातक हैं।

निष्कर्ष:

I. कुछ स्नातक अधिकारी हैं।

II. सभी स्नातक अधिकारी हैं।

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।

Question ID : 1860452002

Status : Answered

Chosen Option : 1

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?

Ans  1. 36

2. 30

3. 32

4. 34

Question ID : 1860452004

Status : Answered

Chosen Option : 2

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 25<sup>th</sup>. What is his rank from the bottom?

Ans  1. 21<sup>st</sup>

2. 25<sup>th</sup>

3. 20<sup>th</sup>

4. 22<sup>nd</sup>

Question ID : 1860452005

Status : Answered

Chosen Option : 1

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 : ?

Ans  1. 343

2. 196

Question ID : 1860451998

Status : Answered

Chosen Option : 4

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

**Ans**  1. RECEIPT

2. PRECEPT

3. CREATOR

4. APPEAR

Question ID : 1860452003

Status : Answered

Chosen Option : 3

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

**Ans**  1. 19, 132

2. 39, 272

3. 31, 216

4. 23, 161

Question ID : 1860452007

Status : Answered

Chosen Option : 4

**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

**Ans**  1. एक

2. दो

3. तीन

4. चार

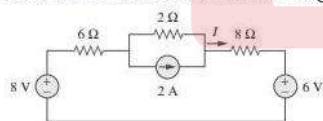
Question ID : 1860452000

Status : Answered

Chosen Option : 4

Section : Circuit Analysis

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



**Ans**  1. 375 mA

2. 200 mA

3. 150 mA

4. 100 mA

Question ID : 1860452033

Status : Answered

Chosen Option : 1

**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.

**Ans**  1. 0.24 A

2. 1.5 A

3. 1.9 A

4. 0.48 A

Question ID : 1860452027

Status : Answered

Chosen Option : 4

**Q.3**

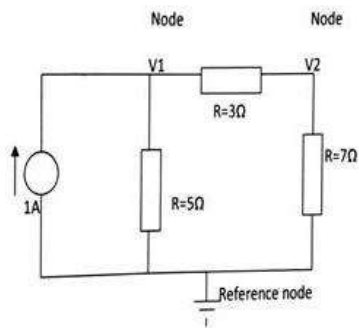
Question ID : 1860452016

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  $5 \mu\text{F}$  and  $10 \mu\text{F}$  respectively are connected in series across a  $200 \text{ V}$  supply, find the potential difference across each capacitor.

- Ans
- 1.  $50 \text{ V}$ ,  $100 \text{ V}$
  - 2.  $133.33 \text{ V}$ ,  $66.66 \text{ V}$
  - 3.  $200 \text{ V}$ ,  $100 \text{ V}$
  - 4.  $100 \text{ V}$ ,  $200 \text{ V}$

Question ID : 1860452032

Status : Answered

Chosen Option : 2

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

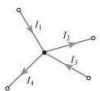
- Ans
- 1.  $2.76 \text{ kWh}$
  - 2.  $1.61 \text{ kWh}$
  - 3.  $38.64 \text{ kWh}$
  - 4.  $19.32 \text{ kWh}$

Question ID : 1860452028

Status : Answered

Chosen Option : 4

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



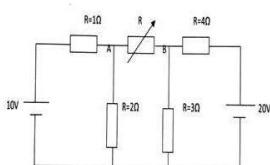
- Ans
- 1.  $3 \text{ A}$
  - 2.  $4 \text{ A}$
  - 3.  $2 \text{ A}$
  - 4.  $6 \text{ A}$

Question ID : 1860452026

Status : Answered

Chosen Option : 1

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



- Ans
- 1.  $23.8 \Omega$
  - 2.  $238 \Omega$

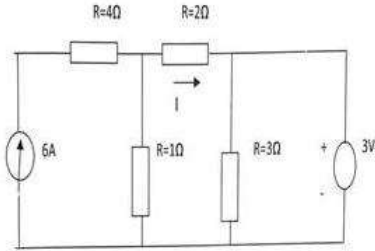
Question ID : 1860452018

Status : Answered

Chosen Option : 3

- ✓ 3.  $2.38 \Omega$
- ✗ 4.  $3 \Omega$

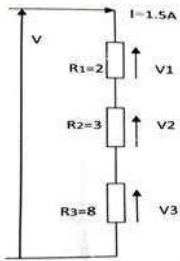
Q.8 For the circuit shown in the figure, the value of current 'I' is \_\_\_\_\_.



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 \_\_\_\_\_.

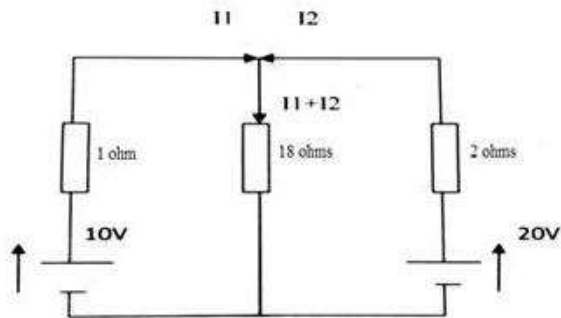


Question ID : 1860452010  
 Status : Answered  
 Chosen Option : 3

- 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.

- Ans**
- 1. 150 Ω
  - 2. 50 Ω
  - 3. 100 Ω
  - 4. 200 Ω

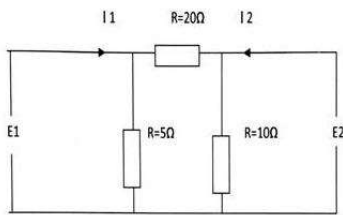
Question ID : 1860452030  
 Status : Answered  
 Chosen Option : 3

**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?

- Ans**
- 1. 8 Ω
  - 2. 12 Ω
  - 3. 5 Ω
  - 4. 6 Ω

Question ID : 1860452024  
 Status : Answered  
 Chosen Option : 3

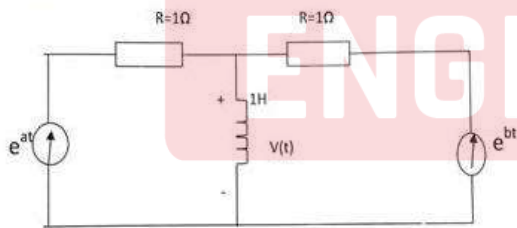
**Q.13** The value of admittance parameter  $Y_{12}$  for the two-port network shown in the figure is:



- Ans**
- 1. -0.05 mho
  - 2. 0.1 mho
  - 3. -0.2 mho
  - 4. 0.05 mho

Question ID : 1860452020  
 Status : Answered  
 Chosen Option : 1

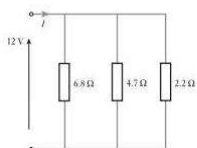
**Q.14** For the circuit shown in the figure, the value of voltage  $v(t)$  is:



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

Question ID : 1860452022  
 Status : Answered  
 Chosen Option : 1

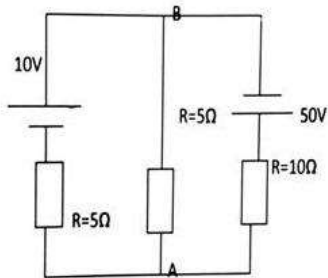
**Q.15** For the network shown in the figure, calculate the effective resistance and the supply current.



Question ID : 1860452025  
 Status : Answered  
 Chosen Option : 1

- Ans  1. 1.23  $\Omega$ , 9.76 A  
 2. 1.23  $\Omega$ , 4.88 A  
 3. 13.7  $\Omega$ , 4.88 A  
 4. 6.8  $\Omega$ , 9.76 A

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



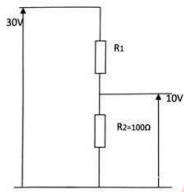
- Ans  1. 40 V  
 2. 25 V  
 3. 10 V  
 4. 6 V

Question ID : 1860452021

Status : Answered

Chosen Option : 4

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  $R_2=100 \Omega$ . The value of resistance  $R_1$  is:



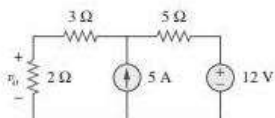
- Ans  1. 150  $\Omega$   
 2. 200  $\Omega$   
 3. 100  $\Omega$   
 4. 300  $\Omega$

Question ID : 1860452011

Status : Answered

Chosen Option : 2

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



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

Question ID : 1860452031

Status : Answered

Chosen Option : 3

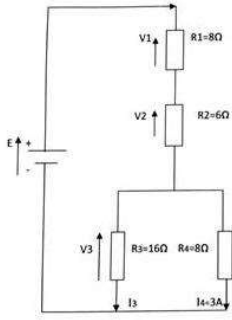
Q.19

Question ID : 1860452014

Status : Answered

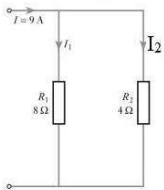
Chosen Option : 3

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.



- Ans
- 1. 160 W, 80 W
  - 2. 80 W, 160 W
  - 3. 140 W, 72 W
  - 4. 72 W, 140 W

Question ID : 1860452029

Status : Answered

Chosen Option : 4

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।

- Ans
- 1. 1,100 Ω
  - 2. 1,134 Ω
  - 3. 1,200 Ω
  - 4. 1,143 Ω

Question ID : 1860452013

Status : Not Answered

Chosen Option : --

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 \_\_\_\_.

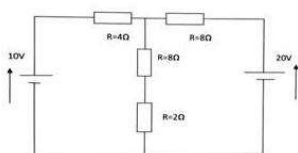
- Ans
- 1. 31.8
  - 2. 3.14
  - 3. 314
  - 4. 31.4

Question ID : 1860452023

Status : Answered

Chosen Option : 2

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



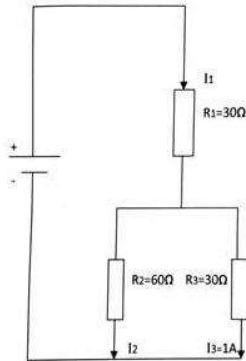
Question ID : 1860452017

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:



- 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

Question ID : 1860452012  
 Status : Answered  
 Chosen Option : 4

Section : Machines

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

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

Question ID : 1860452044  
 Status : Answered  
 Chosen Option : 1

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

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

Question ID : 1860452053  
 Status : Answered  
 Chosen Option : 2

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

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

Question ID : 1860452052  
 Status : Answered  
 Chosen Option : 3

Q.4 Core lamination in a transformer decreases \_\_\_\_\_.

- Ans
- 1. eddy current loss
  - 2. hysteresis loss

Question ID : 1860452041  
 Status : Answered  
 Chosen Option : 1

- 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 \_\_\_\_.

- Ans**
- 1. 960 W
  - 2. 9,600 W
  - 3. 96 W
  - 4. 0.96 W

Question ID : 1860452048

Status : Answered

Chosen Option : 1

**Q.6** The armature of a DC machine is placed on the rotor to \_\_\_\_.

- Ans**
- 1. reduce losses
  - 2. save iron
  - 3. support commutation
  - 4. decrease armature reaction

Question ID : 1860452034

Status : Answered

Chosen Option : 3

**Q.7** A washing machine generally employs a \_\_\_\_\_ motor.

- Ans**
- 1. shaded pole
  - 2. resistance split phase
  - 3. single-phase series
  - 4. hysteresis

Question ID : 1860452051

Status : Answered

Chosen Option : 3

**Q.8** An open circuit test on a transformer gives \_\_\_\_.

- Ans**
- 1. friction losses
  - 2. iron losses
  - 3. total losses
  - 4. copper losses

Question ID : 1860452040

Status : Answered

Chosen Option : 2

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

- Ans**
- 1. 270
  - 2. 180
  - 3. 30
  - 4. 45

Question ID : 1860452057

Status : Answered

Chosen Option : 1

**Q.10** A \_\_\_\_\_ motor runs at the highest speed when the load is removed.

- Ans**
- 1. cumulatively compound
  - 2. series
  - 3. shunt
  - 4. differentially compound

Question ID : 1860452037

Status : Answered

Chosen Option : 2

**Q.11** The magnetic flux path in a transformer must have \_\_\_\_.

- Ans**
- 1. high resistance

Question ID : 1860452054

Status : Answered

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

Chosen Option : 4

Q.12 Leakage flux in a transformer \_\_\_\_.

- 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

Question ID : 1860452042

Status : Answered

Chosen Option : 3

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

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

Question ID : 1860452043

Status : Answered

Chosen Option : 2

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

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

- Ans
- 1.  $(\phi PN)/120$
  - 2.  $(\phi ZPN)/120$
  - 3.  $(\phi ZPN)/180$
  - 4.  $(\phi ZN)/60$

Question ID : 1860452056

Status : Answered

Chosen Option : 2

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

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

Question ID : 1860452047

Status : Answered

Chosen Option : 3

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

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

Question ID : 1860452038

Status : Answered

Chosen Option : 4

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

- Ans
- 1. Hysteresis
  - 2. Universal

Question ID : 1860452050

Status : Answered

Chosen Option : 3



3. Shaded pole

4. Repulsion

Q.18 A capacitor-start motor has a \_\_\_\_\_.

Ans  1. high starting torque

2. low efficiency

3. low power factor

4. high power factor

Question ID : 1860452049

Status : Answered

Chosen Option : 4

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

Ans  1. internal

2. performance

3. external

4. no load saturation

Question ID : 1860452035

Status : Answered

Chosen Option : 1

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

Ans  1. supply voltage

2. number of poles

3. supply frequency

4. phase sequence of supply voltage

Question ID : 1860452045

Status : Answered

Chosen Option : 4

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

Ans  1. improve commutation

2. reduce machine cost

3. mechanically balance the armature

4. increase efficiency

Question ID : 1860452036

Status : Answered

Chosen Option : 3

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

Ans  1. low

2. very high

3. high

4. 1

Question ID : 1860452046

Status : Answered

Chosen Option : 1

Q.23 The current drawn by a 220 V DC motor of armature resistance  $0.5 \Omega$  and back emf 180 V is \_\_\_\_\_.

Ans  1. 0.8 A

2. 80 A

3. 8 A

4. 18 A

Question ID : 1860452039

Status : Answered

Chosen Option : 2

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.

Ans

Question ID : 1860452055

Status : Not Answered

1.  $0.59 \times 10^6 \text{ N/m}^2$   
 2.  $0.89 \times 10^6 \text{ N/m}$   
 3.  $0.59 \times 10^6 \text{ N/m}$   
 4.  $0.89 \times 10^6 \text{ N/m}^2$

Chosen Option : --

## Section : Electronics

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

- Ans**  1. 2,1,4  
 2. 2,4,1  
 3. 4,1,2  
 4. 1,2,4

Question ID : 1860452073

Status : Answered

Chosen Option : 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 \_\_\_\_\_:

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

Question ID : 1860452064

Status : Answered

Chosen Option : 3

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

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

Question ID : 1860452066

Status : Answered

Chosen Option : 3

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

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

Question ID : 1860452063

Status : Answered

Chosen Option : 1

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

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

Question ID : 1860452060

Status : Answered

Chosen Option : 4

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

- Ans**  1.  $0^\circ$   
 2.  $270^\circ$   
 3.  $90^\circ$   
 4.  $180^\circ$

Question ID : 1860452062

Status : Answered

Chosen Option : 1

Q.7  $A+AB$  gets simplified to:

- Ans
- 1.  $AB$
  - 2.  $B$
  - 3.  $A+B$
  - 4.  $A$

Question ID : 1860452068

Status : Answered

Chosen Option : 4

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.

- Ans
- 1. 462  $\mu A$
  - 2. 11.538 mA
  - 3. 462 mA
  - 4. 11.538  $\mu A$

Question ID : 1860452071

Status : Answered

Chosen Option : 1

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

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

Question ID : 1860452072

Status : Answered

Chosen Option : 4

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

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

Question ID : 1860452074

Status : Answered

Chosen Option : 3

Q.11 Zener diodes are used as \_\_\_\_\_.

- Ans
- 1. voltage regulators
  - 2. amplifiers
  - 3. oscillators
  - 4. rectifiers

Question ID : 1860452059

Status : Answered

Chosen Option : 1

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

- 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

Question ID : 1860452070

Status : Answered

Chosen Option : 4

Q.13

Voltage regulation is given by:

$V_{NL}$ : Voltage at no load

$V_{FL}$ : Voltage at full load

- 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.  $((V_{NL} + V_{FL}) / (V_{FL})) * 100\%$

Question ID : 1860452075

Status : Answered

Chosen Option : 2

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

- Ans
- 1. electrons
  - 2. positive ions
  - 3. holes
  - 4. negative ions

Question ID : 1860452058

Status : Answered

Chosen Option : 1

Q.15 The ideal value of CMRR is \_\_\_\_\_.

- Ans
- 1.  $-\infty$
  - 2. 1
  - 3. 0
  - 4.  $\infty$

Question ID : 1860452065

Status : Answered

Chosen Option : 4

Q.16 State the respective decimal equivalent and hexa decimal equivalent of (65)<sub>8</sub>.

- Ans
- 1. 53, 35
  - 2. 46, 65
  - 3. 65, 46
  - 4. 35, 53

Question ID : 1860452069

Status : Answered

Chosen Option : 1

Q.17 The lower and upper cut-off frequencies are also called as \_\_\_\_\_ frequencies.

- Ans
- 1. half resonant
  - 2. half power
  - 3. resonant
  - 4. side band

Question ID : 1860452061

Status : Answered

Chosen Option : 4

Q.18 The binary equivalent of decimal 22 is:

- Ans
- 1. 10110
  - 2. 10001
  - 3. 11010
  - 4. 11111

Question ID : 1860452067

Status : Answered

Chosen Option : 1

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 electrodynamicometer 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:

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

Question ID : 1860452076  
 Status : Answered  
 Chosen Option : 2

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

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

Question ID : 1860452080  
 Status : Answered  
 Chosen Option : 3

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

- Ans  1. domestic  
 2. commercial  
 3. industrial  
 4. agricultural

Question ID : 1860452087  
 Status : Answered  
 Chosen Option : 1

Q.11 The \_\_\_\_ bridge is frequency sensitive.

- Ans  1. Wien  
 2. Anderson  
 3. Wheatstone  
 4. Maxwell

Question ID : 1860452078  
 Status : Answered  
 Chosen Option : 1

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

- Ans  1. Anderson  
 2. Hay  
 3. Maxwell  
 4. Wien

Question ID : 1860452077  
 Status : Answered  
 Chosen Option : 2

Section : Control System

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

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

Question ID : 1860452093  
 Status : Answered  
 Chosen Option : 2

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

Question ID : 1860452088

- Ans  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:

$$s^3 + s^2 + s + 4$$

- Ans  1. Absolutely stable  
 2. Critically stable  
 3. Unstable  
 4. Marginally stable

Question ID : 1860452092  
 Status : Answered  
 Chosen Option : 3

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

- Ans  1.  $180^\circ$   
 2.  $90^\circ$   
 3.  $-90^\circ$   
 4.  $-180^\circ$

Question ID : 1860452090  
 Status : Answered  
 Chosen Option : 4

Q.5 The frequency at which the phase angle is  $180^\circ$  is called the \_\_\_\_\_ frequency.

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

Question ID : 1860452089  
 Status : Answered  
 Chosen Option : 3

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

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

Question ID : 1860452091  
 Status : Answered  
 Chosen Option : 1

Section : Material system

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

- Ans  1. Aluminium  
 2. Copper  
 3. Lead  
 4. Cast iron

Question ID : 1860452094  
 Status : Answered  
 Chosen Option : 3

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

Ans

Question ID : 1860452095  
 Status : Answered

- 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<sub>2</sub>
  - 2. CaF<sub>2</sub>
  - 3. FeSO<sub>4</sub>
  - 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:

- Ans
- 1. sparking
  - 2. short circuit
  - 3. fire
  - 4. lightning

Question ID : 1860452100  
Status : Answered  
Chosen Option : 2

Q.4 \_\_\_\_\_ combined together are called stray losses.

- Ans
- 1. Frictional loss and copper loss
  - 2. Field copper loss and iron loss
  - 3. Iron and mechanical losses
  - 4. Copper and iron losses

Question ID : 1860452104  
Status : Answered  
Chosen Option : 3

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:

- Ans
- 1. 5.9 mH
  - 2. 6.5 mH
  - 3. 5.7 mH
  - 4. 7 mH

Question ID : 1860452103  
Status : Answered  
Chosen Option : 3

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

- Ans
- 1. unstable
  - 2. highly stable
  - 3. oscillatory
  - 4. stable

Question ID : 1860452105  
Status : Answered  
Chosen Option : 1