



## SSC JE Electrical Engineering 25th May 2014 Shift-2

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# General Intelligence and Reasoning

## Instructions

In the following questions, select the related word/letters/numbers from the given alternatives.

### Question 1

Uttarakhand : Dehradun :: Mizoram : ?

- A Aizawl
- B Kohima
- C Shillong
- D Darjeeling

**Answer:** A

### Explanation:

Dehradun is the capital of the Uttarakhand similarly Aizawl is the capital of the Mizoram.

∴ Option A is the correct answer.

### Question 2

Crime : Court :: Disease : ?

- A Doctor
- B Medicine
- C Hospital
- D Treatment

**Answer:** C

### Explanation:

As crime is related to court similarly, disease is related to hospital.

∴ The correct answer is option C.

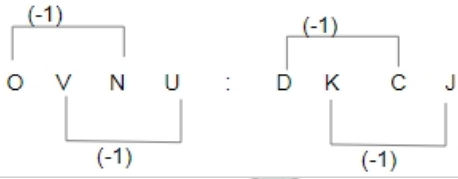
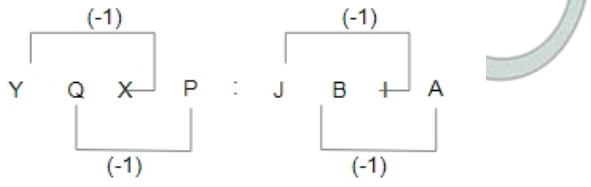
### Question 3

YQXP : JBIA :: OVNU : ?

- A FAGZ
- B HRIS
- C DKCJ
- D DNEO

**Answer:** C

### Explanation:



∴ Option C is the correct answer.

**Question 4**

ADGJ : BEHK :: DGJM : ?

- A KPUB
- B EHKN
- C KNQT
- D PSVY

**Answer: B**

**Explanation:**

In ADGJ : BEHK

- A (+1) → B
- D (+1) → E
- G (+1) → H
- J (+1) → K

Similarly,

In DGJM : ?

- D (+1) → E
- G (+1) → H
- J (+1) → K
- M (+1) → N

? = EHKN

∴ Option B is the correct answer.

**Question 5**

ACE : BDF :: GIK : ?

- A HJL
- B AXP
- C CFG
- D GFC

**Answer: A**

**Explanation:**

In ACE : BDF

A (+1) → B

C (+1) → D

E (+1) → F

Similarly,

In GIK : ?,

G (+1) → H

I (+1) → J

K (+1) → L

∴ Option A is the correct answer.

### Question 6

CAT : BIG :: DDY : ?

A CLL

B CLM

C CML

D CEP

**Answer: A**

**Explanation:**

For CAT : BIG,

C (-1) → B

A (+8) → I

T (+13) → G

Similarly,

For DDY : ?,

D (-1) → C

D (+8) → L

Y (+13) → L

∴ Option CLL is the correct answer.

### Question 7

1 : 1 :: 10 : ?

A 12

B 110

C 210

D 1000

**Answer: D**

**Explanation:**

1 : ( $1^3 = 1$ )

10 : ( $10^3 = 1000$ )

**Question 8**

7 : 56 :: 5 : ?

- A 25
- B 26
- C 30
- D 35

**Answer:** C

**Explanation:**

$$7 \times (7 + 1) = 56$$

$$5 \times (5 + 1) = 30$$

**Instructions**

For the following questions answer them individually

**Question 9**

The following numbers fall in a group. Which one does not belong to the group ?

53, 63, 83, 73

- A 53
- B 63
- C 83
- D 73

**Answer:** B

**Explanation:**

Only 63 is divisible by 3 so 63 not belong to this group.

∴ Option B is correct answer.

**Question 10**

Which one is the same as Mumbai, Kolkata and Cochin

- A Delhi
- B Kanpur
- C Chennai
- D Sholapur

**Answer:** C

**Explanation:**

Mumbai, Kolkata and Cochin are the capitals of states similarly Chennai is capital of Tamilnadu.

**Instructions**

In the following questions, find the odd word/letters/number pair from the given alternatives.

**Question 11**

- A Kolkata

- B Vishakhapatnam
- C Bengaluru
- D Haldia

**Answer: C**

**Explanation:**

Except Bengaluru remaining all are ports.

**Question 12**

- A Cabbage
- B Carrot
- C Potato
- D Beetroot

**Answer: A**

**Explanation:**

Carrot, Potato and Beetroot are the root so Cabbage is odd.

**Question 13**

- A HGFE
- B PONM
- C DCBA
- D MSTU

**Answer: D**

**Explanation:**

In HGFE,

$H - 1 \rightarrow G - 1 \rightarrow F - 1 \rightarrow E$

In PONM,

$P - 1 \rightarrow O - 1 \rightarrow N - 1 \rightarrow M$

In DCBA,

$D - 1 \rightarrow C - 1 \rightarrow B - 1 \rightarrow A$

In MSTU,

$M + 6 \rightarrow S + 1 \rightarrow T + 1 \rightarrow U$

$\therefore$  Option D is different.

**Question 14**

- A GFI
- B VUX
- C POR
- D LKM

**Answer: D**

**Explanation:**

In GFI,

$$G - 1 \rightarrow F + 3 \rightarrow I$$

In VUX,

$$V - 1 \rightarrow U + 3 \rightarrow X$$

In POR,

$$P - 1 \rightarrow O + 3 \rightarrow R$$

In LKM,

$$L - 1 \rightarrow K + 2 \rightarrow M$$

$\therefore$  Option D is the correct answer.

**Question 15**

A vwqp

B yxmn

C gfkI

D cbrs

**Answer: A**

**Explanation:**

In the vwqp,

$$v + 1 = w - 6 = q + 1 = p$$

In the yxmn,

$$y - 1 = x - 11 = m + 1 = n$$

In the gfkI,

$$g - 1 = f + 5 = k + 1 = I$$

In the cbrs,

$$c - 1 = b + 16 = r + 1 = s$$

$\therefore$  vwqp is odd.

**Question 16**

A (324, 18)

B (441, 72)

C (117, 81)

D (186, 14)

**Answer: D**

**Explanation:**

$$(324, 18) \rightarrow 3 + 2 + 4 = 9 \text{ and } 1 + 8 = 9$$

$$(441, 72) \rightarrow 4 + 4 + 1 = 9 \text{ and } 7 + 2 = 9$$

$$(117, 81) \rightarrow 1 + 1 + 7 = 9 \text{ and } 8 + 1 = 9$$

$$(186, 14) \rightarrow 1 + 8 + 6 = 15 \text{ and } 1 + 4 = 5$$

(186, 14) is odd.

**Question 17**

- A (11, 121)
- B (25, 625)
- C (12, 141)
- D (15, 225)

**Answer:** C

**Explanation:**

In (11, 121),

$$(11)^2 = 121$$

In (25, 625),

$$(25)^2 = 625$$

In (12, 141),

$$(12)^2 = 144$$

In (15, 225),

$$(15)^2 = 225$$

therefore (12, 141) is odd.

**Instructions**

For the following questions answer them individually

**Question 18**

Find the smallest number which when divided by 25, 40, or 56 has in each case 13 as remainder.

- A 1413
- B 1400
- C 1439
- D 1426

**Answer:** A

**Explanation:**

Smallest number = (LCM of 25, 40 and 56) + remainder

$$\text{Factor of 25} = 5^2$$

$$\text{Factor of 40} = 2^3 \cdot 5$$

$$\text{Factor of 56} = 2^3 \cdot 7$$

$$\text{LCM of 25, 40 and 56} = 2^3 \cdot 5^2 \cdot 7 = 1400$$

$$\text{Smallest number} = 1400 + 13 = 1413$$

**Question 19**

Arrange the following words as per order in the dictionary:

1. Emplane
2. Empower
3. Embrace
4. Elocution
5. Equable



- A 5, 1, 3, 2, 4
- B 4, 2, 1, 3, 5
- C 4, 3, 1, 2, 5
- D 4, 5, 2, 3, 1

**Answer: C**

**Explanation:**

Order as per dictionary,

Elocution → Embrace → Emplane → Empower → Equable

**Question 20**

Which one of the given response would be a meaningful order of the following words ?

1. Sowing
2. Tilling
3. Reaping
4. Weeding

- A 3, 1, 2, 4
- B 2, 1, 4, 3
- C 1, 2, 4, 3
- D 1, 3, 2, 4

**Answer: B**

**Explanation:**

Order of meaningful word,

Tilling → Sowing → Weeding → Reaping

**Question 21**

Arrange the colours of the rainbow (in the reverse order)(from the top edge):

Red, Orange, .....

1. Blue
2. Indigo
3. Yellow
4. Green
5. Violet

- A 3, 4, 1, 2, 5
- B 4, 3, 2, 5, 1
- C 5, 3, 4, 2, 1
- D 2, 4, 3, 1, 5

**Answer: A**

**Explanation:**

Colors of the rainbow (in the reverse order) = Red, Orange, Yellow, Green, Blue, Indigo, Violet

**Instructions**

In the following questions, a series is given, with one term missing. Choose the correct alternative from the given ones that will complete the series.

**Question 22**

CEG, JLN, QSU, .....

- A QQS
- B TVX
- C HJL
- D UVW

**Answer:** C

**Explanation:**

In CEG,

$$C + 2 \rightarrow E + 2 \rightarrow G$$

In JLN,

$$J + 2 \rightarrow L + 2 \rightarrow N$$

In QSU,

$$Q + 2 \rightarrow S + 2 \rightarrow U$$

Similarly,

In HJL,

$$H + 2 \rightarrow J + 2 \rightarrow L$$

∴ The correct option is HJL.

**Question 23**

B-1, D-2, F-4, H-8, J-16, .....

- A K-64
- B L-32
- C M-32
- D L-64

**Answer:** B

**Explanation:**

Order of letters,

$$B + 2 = D + 2 = F + 2 = H + 2 = J + 2 = L$$

Order of numbers,

$$1 \times 2 = 2$$

$$2 \times 2 = 4$$

$$4 \times 2 = 8$$

$$8 \times 2 = 16$$

$$16 \times 2 = 32$$

So, next term = L-32

**Question 24**

CGJ, KOR, TXA, .....

A ACE

B JDP

C FJM

D UWY

Answer: C

**Explanation:**

For CGJ,

$C + 4 = G$

$G + 3 = J$

For KOR,

$K + 4 = O$

$O + 3 = R$

Similarly,

**For FJM,**

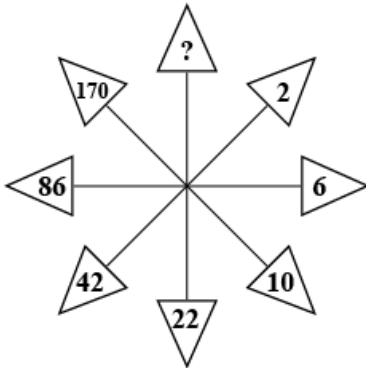
$F + 4 = J$

$J + 3 = M$

**Instructions**

In the following questions find the missing number from the given responses.

**Question 25**



A 422

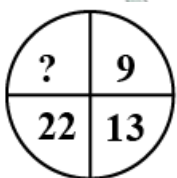
B 374

C 256

D 342

Answer: D

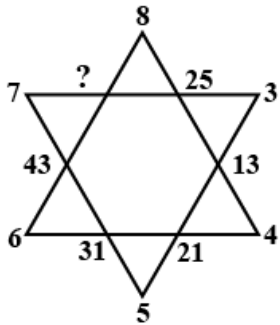
**Question 26**



- A 40
- B 38
- C 39
- D 44

Answer: B

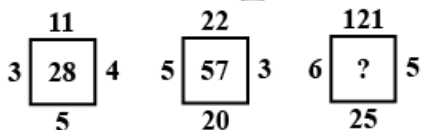
Question 27



- A 56
- B 57
- C 58
- D 59

Answer: B

Question 28



- A 176
- B 115
- C 157
- D 131

Answer: A

**Explanation:**

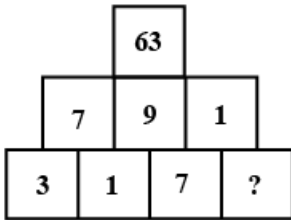
$$(11 + 5) + 3 \times 4 = 16 + 12 = 28$$

$$(22 + 20) + 5 \times 3 = 42 + 15 = 57$$

$$(121 + 25) + 6 \times 5 = 146 + 30 = 176$$

∴ The correct answer is option A.

Question 29



- A 3
- B 9
- C 5
- D 2

Answer: A

Instructions

For the following questions answer them individually

Question 30

Arrange the letters to form a word and suggest what is it.

NGDEALN

- A State
- B Country
- C River
- D Ocean

Answer: B

Explanation:

Number of the letter in NGDEALN = 7

So, possible word = Country

(∵ Number of the letter in Country = 7)

Question 31

If A = 1, B = 2 and N = 14, then BEADING = ?

- A 2154(14)97
- B 2514(14)79
- C 25149(14)7
- D 2154(14)79

Answer: C

Explanation:

A = 1,

B = 2

N = 14,

BEADING = 25149(14)7

**Question 32**

If  $A = 1$ ,  $AGE = 13$ , then  $CAR = ?$

- A 19
- B 20
- C 21
- D 22

**Answer:** D

**Explanation:**

$A = 1$ ,  
 $AGE = 1 + 7 + 5 = 13$   
 $CAR = 3 + 1 + 18 = 22$

**Question 33**

If an electric train runs in the direction from North to South with a speed of 150 km/hr covering 2000 km, then in which direction will the smoke of its engine go ?

- A  $N \rightarrow S$
- B  $S \rightarrow N$
- C  $E \rightarrow W$
- D No direction

**Answer:** D

**Explanation:**

An electric train does not emit smoke. Therefore, no smoke will be going in any of the direction.

**Question 34**

If  $1 = 1$ ,  $2 = 3$ ,  $3 = 5$ , and  $4 = 7$ , then  $5 = ?$

- A 9
- B 7
- C 5
- D 8

**Answer:** A

**Explanation:**

The logic is,

$1 = 1 \times 2 - 1 = 1$ ,  
 $2 = 2 \times 2 - 1 = 3$ ,  
 $3 = 3 \times 2 - 1 = 5$ ,  
 $4 = 4 \times 2 - 1 = 7$ ,  
 $5 = 5 \times 2 - 1 = 9$

**Question 35**

Find the answer of the following:

$$7 + 3 = 421$$

$$11 + 7 = 477$$

$$9 + 5 = 445$$

$$6 + 2 = ?$$

A 444

B 412

C 475

D 487

**Answer: B**

**Explanation:**

$$7 + 3 = (7 - 3)(7 \times 3) = 421$$

$$11 + 7 = (11 - 7)(11 \times 7) = 477$$

$$9 + 5 = (9 - 5)(9 \times 5) = 445$$

$$6 + 2 = (6 - 2)(6 \times 2) = 412$$

**Question 36**

Find the odd number out:

18, 34, 36, 54

A 34

B 54

C 18

D 36

**Answer: A**

**Explanation:**

$$18 = 1 + 8 = 9$$

$$34 = 3 + 4 = 7$$

$$36 = 3 + 6 = 9$$

$$54 = 5 + 4 = 9$$

∴ 34 is odd.

**Question 37**

Introducing a girl, Ram said to his son-in-law, "Her brother is the only son of my brother-in-law." Who is the girl of Ram ?

A Sister-in-law

B Niece

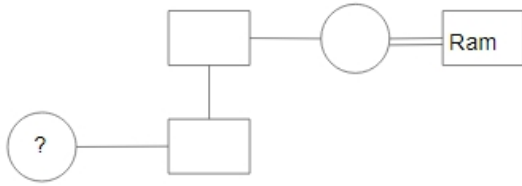
C Daughter

D Sister

**Answer: B**

**Explanation:**

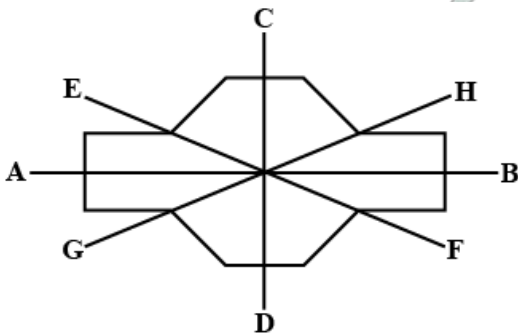
In the following diagram,  
 Circle represents female  
 Square represents male  
 Single horizontal line represents sibling  
 Double horizontal line represents couple  
 Single vertical line represents Mother/Father/Son/Daughter



∴ The girl is niece.

**Question 38**

Which of the following are the lines of symmetry ?



- A AB and CD
- B EF and GH
- C All of the above
- D None of the above

**Answer: C**

**Question 39**

Murthy drove from town A to town B. In the first hour, he travelled  $\frac{1}{4}$  of the journey. In the next one hour, he travelled  $\frac{1}{2}$  of the journey. In the last 30 minutes, he travelled 80 km. Find the distance of the whole journey.

- A 240 km
- B 300 km
- C 320 km
- D 360 km

**Answer: C**

**Explanation:**

Let the total journey be x km.

Remaining distance of the journey = 80 km

$$x - \frac{x}{4} - \frac{x}{2} = 80 \text{ km}$$

$$\frac{x}{4} = 80$$



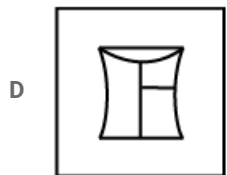
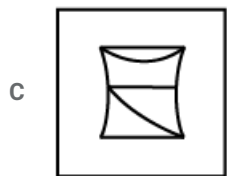
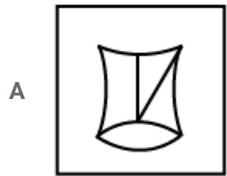
$x = 320 \text{ km}$

$\therefore$  Total distance is 320 km of whole journey.

**Question 40**

Identify the answer figure from which the pieces given in question figure have been cut.

**Question figure:**

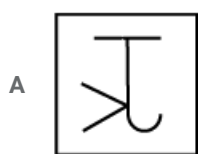


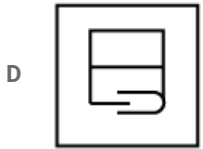
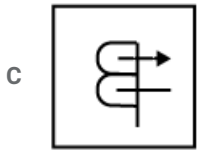
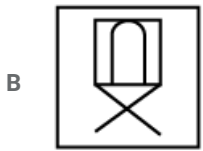
Answer: C

**Question 41**

Which of the answer figures is not made up only by the components of the question figure?

*Question figure:*

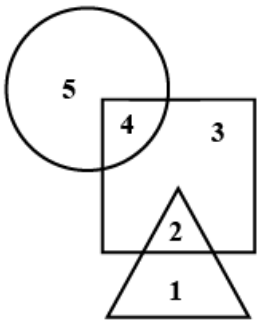




Answer: C

Question 42

Which of the following numbers is present only in the square and the circle?



A 5

B 4

C 3

D 2

Answer: B

Question 43

Which figure represents the relation among Computer, Internet and Information-Communication Technology?



**Answer: B**

**Instructions**

In the following questions, one or two statements are given, followed by three/four Conclusions/Arguments, I, II, III and IV. You have to consider the statements to be true, even if they seem to be at variance from commonly known facts. You are to decide which of the given Conclusions/Arguments can definitely be drawn from the given statement(s). Indicate your answer.

**Question 44**

**Statements :**

- 1. SAGE is a reputed publisher of both journals and books.
- 2. All publishing of SAGE is highly qualitative.

**Conclusions :**

- I. SAGE publishes qualitative articles.
- II. SAGE did not publish lowest quality articles.
- III. SAGE enriches its publications by high scrutinization.

- A Only conclusion III
- B All conclusions
- C Only conclusion I and II
- D Only conclusion II and III

**Answer: B**

**Explanation:**

All conclusion are strong.

**Question 45**

**Statements:**

**Should little children be loaded with such heavy school bags ?**

**Arguments :**

- I. Yes, a heavy bag means more knowledge.
- II. No, heavy school bags spoil the posture of the children.
- III. Yes, children need to be adapted for earning knowledge.
- IV. No, a heavy bag never ensures knowledge gathering.

- A I and III appear to be strong arguments
- B I and III are poor arguments
- C II and IV are strong arguments
- D I and IV are strong arguments

**Answer: C**

**Explanation:**

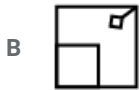
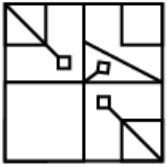
II and IV are strong arguments.

**Instructions**

In the following questions, which answer figure will complete the pattern in the question figure ?

Question 46

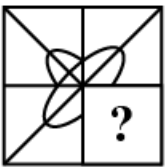
Question figure:



Answer: C

Question 47

Question figure:



Answer: D

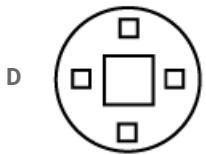
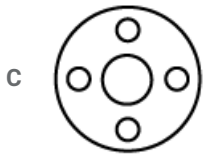
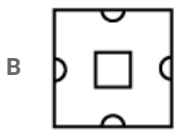
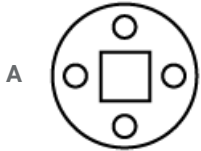
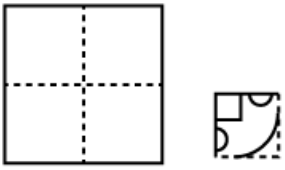
Instructions

For the following questions answer them individually

Question 48

A piece of paper is folded and cut as shown below in the question figures. From the given answer figures, indicate how it will appear when opened.

Question figure:

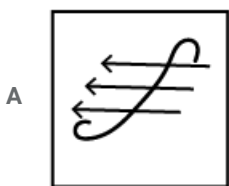
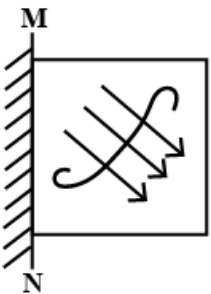


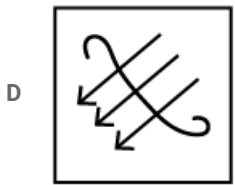
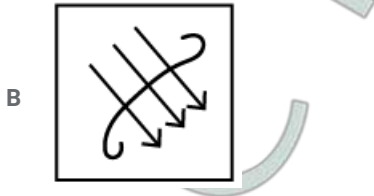
Answer: A

Question 49

If a mirror is placed on the line MN, then which of the answer figures is the correct image of the question figure?

Question figure:





Answer: D

**Question 50**

In the following question, a matrix of certain characters is given. These characters follow a certain trend, row-wise or column-wise. Find out this trend and choose the missing characters accordingly.

9	10	5
5	6	4
4	6	4
536	660	?

A 450

B 550

C 320

D 420

Answer: D

## General Awareness

**Instructions**

For the following questions answer them individually

**Question 51**

Classification of Economics into two branches (Macro Economics and Micro Economics) was done by

A J.M. Keynes

B Milton Friedman

C Ragnar Frisch

D Adam Smith

Answer: C

**Question 52**

**'Capital Goods' refers to goods which**

- A Serve as a source of raising further capital
- B Help in the further production of goods
- C Directly go into the satisfaction of human wants
- D Find multiple uses

**Answer: B**

**Question 53**

**NNP is equal to**

- A GNP + Depreciation
- B GNP - Depreciation
- C GNP + Exports
- D GNP - Exports

**Answer: B**

**Question 54**

**Rate of growth of an economy is measured in terms of**

- A Per capita income
- B Industrial development
- C Number of people who have been lifted above the poverty line.
- D National income

**Answer: D**

**Question 55**

**The basic characteristic of oligopoly is**

- A A few sellers, a few buyers
- B A few sellers, many buyers
- C A few sellers, one buyer
- D Many sellers, a few buyers

**Answer: B**

**Question 56**

**Governor will act on the advice of Council of Ministers while**

- A Dissolving the Legislative Assembly

- B Appointing the chairman of the State Public Service Commission
- C Recommending for President's Rule in the State
- D Returning a bill for reconsideration

**Answer: A**

**Question 57**

**The Supreme Court of India was set up by the**

- A Regulation Act, 1773
- B Pitts India Act, 1784
- C Charter Act, 1813
- D Charter Act, 1833

**Answer: A**

**Question 58**

**Which Constitutional Amendment provided Constitutional status to Panchayat Raj Institutions ?**

- A 93<sup>rd</sup> Amendment
- B 44<sup>th</sup> Amendment
- C 42<sup>nd</sup> Amendment
- D 73<sup>rd</sup> Amendment

**Answer: D**

**Question 59**

**Who has the power to pardon in case of capital punishment ?**

- A Prime Minister
- B President
- C Chief Justice
- D Attorney General of India

**Answer: B**

**Question 60**

**The Union Public Service Commission of India has been established under**

- A Article 315
- B Article 320
- C Article 325
- D Article 335

**Answer: A**



**Question 61**

**The Harappans worshipped**

- A Shiva, Parvathi and Vishnu
- B Mother Goddess and Prashupathi
- C Vishnu and Mother Goddess
- D Pashupathi and Vishnu

**Answer: B**

**Question 62**

**Gandhiji started the Dandi March for**

- A Poorna Swaraj
- B Home-rule
- C Protest against the imposition of Salt Tax
- D Responsible Government

**Answer: C**

**Question 63**

**The famous court poet of Akbar was**

- A Birbal
- B Tulsidas
- C Rahim Khan
- D Bairam Khan

**Answer: B**

**Question 64**

**Who established four great Mathas at the four corners of India - Sringeri, Puri, Dwaraka and Badrinath ?**

- A Shankara
- B Ramanuja
- C Madhva
- D Ramananda

**Answer: A**

**Question 65**

**The local name of Mohenjodaro is**

- A Mound of the living
- B Mound of the great

C Mound of the dead

D Mound of bones

Answer: C

Question 66

Which is the longest dam in India ?

A Bhakra-Nangal

B Rihand

C Hirakud

D Nagarjuna Sagar

Answer: C

Question 67

The Thermal Power Plant in Tamil Nadu is

A Kundah

B Ramagundam

C Pykara

D Neyveli

Answer: D

Question 68

Which of the following regions does not come under the Mediterranean type of climate ?

A Iberian Peninsula

B California coast

C Chilean coast

D Eastern coast of South Africa

Answer: D

Question 69

The main cause of faulting is

A Tension

B Wind

C Tidal activity

D Gravitational force

Answer: A

**Question 70**

**'Pan America' refers to**

- A North America
- B South America
- C Central America
- D All the above

**Answer: D**

**Question 71**

**Most primitive living vascular plants are**

- A Brownalgae
- B Cycas
- C Ferns
- D Sphabnum

**Answer: C**

**Question 72**

**Temporary wilting occurs in plants due to**

- A Respiration
- B Transpiration
- C Photosynthesis
- D Absorption of water

**Answer: B**

**Question 73**

**Lichens are a symbiotic association of**

- A Algae and Fungi
- B Bacteria and Fungi
- C Bacteria and Algae
- D Fungi and Higher plants

**Answer: A**

**Question 74**

**Photophobia is caused by the deficiency of**

- A Vitamin B1
- B Vitamin B2

C Vitamin B4

D Vitamin B6

**Answer: B**

**Question 75**

**Which of the following is present only in plant cell ?**

A Cell membrane

B Mitochondria

C Cell wall

D Endoplasmic reticulum

**Answer: C**

**Question 76**

**The yellow colour of mangoes is due to the presence of**

A Chlorophyll

B Anthocyanin

C Anthoxanthin

D Carotene

**Answer: D**

**Question 77**

**Lunar eclipse is caused by shadow of the**

A Earth on the Moon

B Moon on the Sun

C Earth on the Sun

D Earth and the Moon on other stars

**Answer: A**

**Question 78**

**The largest planet in the solar system is**

A Venus

B Mars

C Jupiter

D Earth

**Answer: C**

**Question 79**

**Asteroid belt is a region in the solar system that exists between the orbits of**

- A Venus and Mars
- B Mars and Jupiter
- C Mercury and Earth
- D Jupiter and Uranus

**Answer: B**

**Question 80**

**Electrocardiograph (ECG) is used to measure**

- A Blood Count
- B Heart Beat
- C Temperature
- D Electricity

**Answer: B**

**Question 81**

**USB stands for**

- A Unique Serial Bus
- B Universal Serial Bus
- C Unary Serial Bus
- D Universal Secondary Bus

**Answer: B**

**Question 82**

**In computer network terminology, WAN stands for**

- A World area network
- B Wide area network
- C Wide array net
- D Wireless area network

**Answer: B**

**Question 83**

**Which element produces hydrogen on reaction with strong alkali ?**

- A Si
- B C

C P

D S

Answer: D

**Question 84**

Which metal does not react with dilute  $H_2SO_4$ ?

A Pb

B Fe

C Zn

D Mg

Answer: A

**Question 85**

The unit of rate of reaction is

A Mol lit<sup>-1</sup> sec<sup>-1</sup>

B Sec mol<sup>-1</sup>

C Moles sec<sup>-1</sup>

D Joules sec<sup>-1</sup>

Answer: A

**Question 86**

Salt that dissolves in aqueous ammonia solution is

A  $HgCl_2$

B  $PbCl_2$

C  $Cu(OH)_2$

D  $Al(OH)_3$

Answer: C

**Question 87**

Residence time of water molecule in the ocean is

A 3.5 years

B 3.5 million years

C 35 years

D 35000 years

Answer: C

**Question 88**

**Biotic environment includes**

- A Producers
- B Consumers
- C Decomposers
- D All the above

**Answer: D**

**Question 89**

**A natural phenomenon that becomes harmful due to pollution is**

- A Global warming
- B Ecological balance
- C Greenhouse effect
- D Desertification

**Answer: C**

**Question 90**

**Decomposers include**

- A Bacteria
- B Fungi
- C Both Bacteria and Fungi
- D Animals

**Answer: C**

**Question 91**

**Who said about religion that "it is the opium of the masses"?**

- A Hitler
- B Stalin
- C Lenin
- D Marx

**Answer: D**

**Question 92**

**The first woman in the world to have climbed Mt. Everest twice is**

- A Bachendri Pal
- B Molly Chacko

C Santosh Yadav

D Theresia Kiesel

**Answer: C**

**Question 93**

**What is the basic foundation of**

A Political campaigns

B Social movements

C Religion and morality

D Freedom of the individual

**Answer: D**

**Question 94**

**Amir Khusran was a famous poet in the court of**

A Akbar

B Shahjahan

C Ibrahim Lodhi

D Alauddin Khilji

**Answer: D**

**Question 95**

**In the year 1905, Gopal Krishna Gokhale founded the**

A Servants of India Society

B Asiatic Society

C Brahmo Samaj

D Bharat Sewak Samaj

**Answer: A**

**Question 96**

**Gandhiji believed that Satyagraha is a weapon of**

A the poor

B the weak

C the untouchables

D the brave

**Answer: D**



**Question 97**

**Pt. Shiv Kumar Sharma is an exponent of**

- A Mandolin
- B Santoor
- C Sitar
- D Veena

**Answer: B**

**Question 98**

**Patanjali is well-known for the compilation of**

- A Yogasutra
- B Panchatantra
- C Brahmasutra
- D Ayurveda

**Answer: A**

**Question 99**

**Which of the following Presidents of America abolished Slavery ?**

- A Abraham Lincoln
- B Thomas Jefferson
- C Geoge Washington
- D Stanley Jackson

**Answer: A**

**Question 100**

**Who is the first woman cosmonaut of the world**

- A Valentina Tereshkova
- B Maria Estela Peron
- C Svetlana Savitskaya
- D Kay Cotte

**Answer: A**

## **General Engineering (Electrical)**

### **Instructions**

For the following questions answer them individually

Question 101

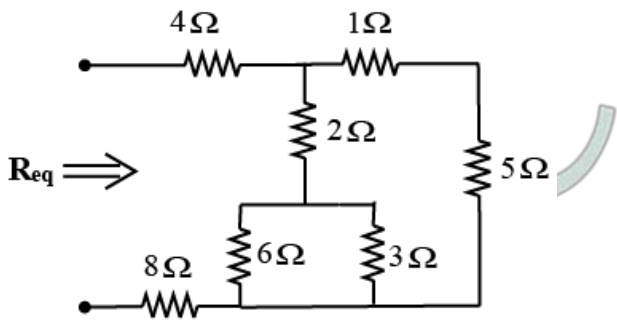
A stove element draws 15 A when connected to 230 V line. How long does it take to consume one unit of energy?

- A 3.45 h
- B 2.16 h
- C 1.0
- D 0.29 h

Answer: D

Question 102

The  $R_{eq}$  for the circuit shown in figure is



- A  $14.4\Omega$
- B  $14.57\Omega$
- C  $15.27\Omega$
- D  $15.88\Omega$

Answer: A

Question 103

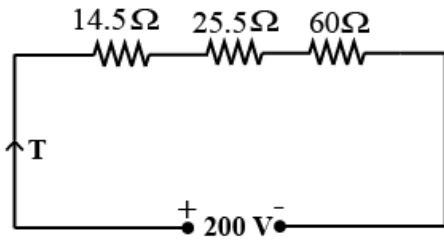
The SI unit of conductivity is

- A  $ohm - m$
- B  $\frac{ohm}{m}$
- C  $mho - m$
- D  $\frac{mho}{m}$

Answer: D

Question 104

Calculate the voltage drop across  $14.5\Omega$  resistance

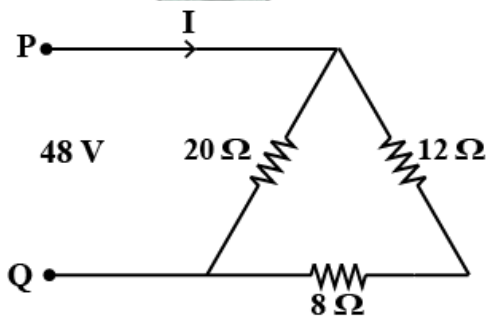


- A 14.5 V
- B 18 V
- C 28 V
- D 30.5 V

Answer: C

Question 105

For the network shown in the figure, the value of current in  $8\Omega$  resistor is



- A 4.8 A
- B 2.4 A
- C 1.5 A
- D 1.2 A

Answer: B

Question 106

A piece of oil soaked paper has been inserted between the plates of a parallel plate capacitor. Then the potential difference between the plates will

- A increase
- B decrease
- C remain unaltered
- D become zero

Answer: B

**Question 107**

The current drawn by a tungsten filament lamp is measured by an ammeter. The ammeter reading under steady state condition will be \_\_\_\_\_ the ammeter reading when the supply is switched on

- A same as
- B less than
- C greater than
- D double

**Answer: B**

**Question 108**

Tesla is same as

- A  $\frac{\text{Weber}}{\text{meter}}$
- B  $\frac{\text{Weber}}{(\text{meter})^2}$
- C  $\frac{\text{Farad}}{\text{meter}}$
- D  $\frac{\text{Henry}}{(\text{meter})^2}$

**Answer: B**

**Question 109**

The unit of volume resistivity is

- A  $\frac{\text{ohm-m}^3}{\text{m}^2}$
- B  $\frac{\text{ohm-m}^2}{\text{m}}$
- C  $\frac{\text{ohm-gram-m}}{\text{gram}}$
- D  $\frac{\text{ohm-m}^4}{\text{m}^3}$

**Answer: A**

**Question 110**

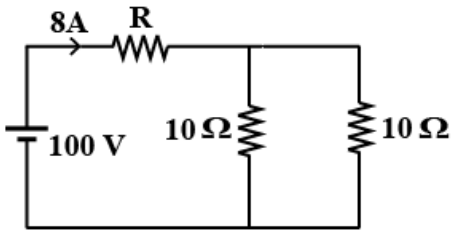
Four resistance  $2\Omega$ ,  $4\Omega$ ,  $5\Omega$ ,  $20\Omega$  are connected in parallel. Their combined resistance is

- A  $1\Omega$
- B  $2\Omega$
- C  $4\Omega$
- D  $5\Omega$

**Answer: A**

Question 111

In the figure, the value of R is

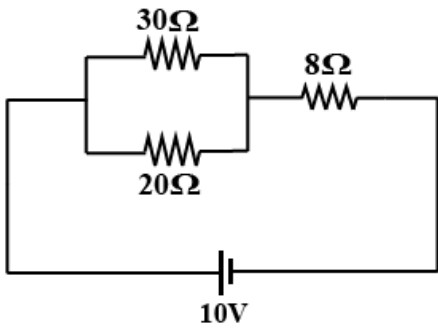


- A 2.5Ω
- B 5.0Ω
- C 7.5Ω
- D 10.0Ω

Answer: C

Question 112

Power consumed in the given circuit is



- A 100 Watts
- B 5 Watts
- C 20 Watts
- D 40 Watts

Answer: B

Question 113

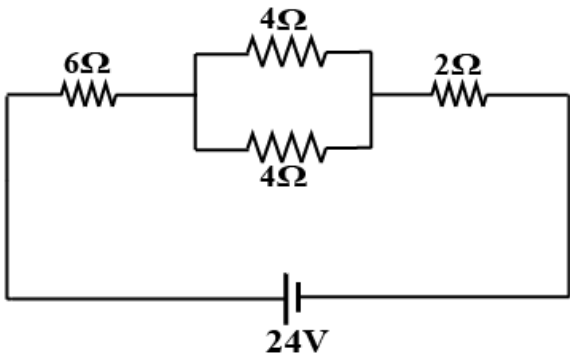
A 200 W, 200 V bulb and a 100 W, 200 V bulb are connected in series and the voltage of 400 V is applied across the series connected bulbs, Under this condition

- A 100 W bulb will be brighter than 200 W bulb
- B 200 W bulb will be brighter than 100 W bulb
- C Both the bulbs will have equal brightness
- D Both the bulbs will be darker than when they are connected across rated voltage

Answer: A

Question 114

In the network shown, if one of the  $4\Omega$  resistances is disconnected, when the circuit is active, the current flowing now will

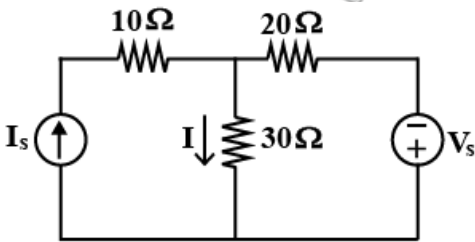


- A increase very much
- B decrease
- C be zero
- D increase very slightly

Answer: B

Question 115

For the circuit shown in figure, when  $V_s = 0, I = 3A$ , When  $V_s = 200V$ , what will be the value of  $I$ ?

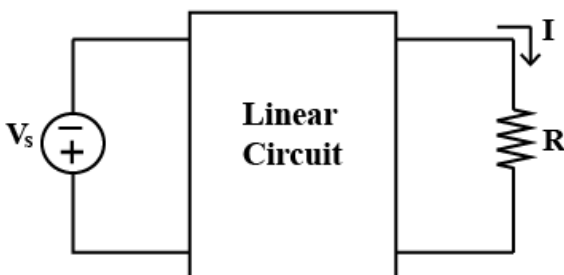


- A -4A
- B -1A
- C 1A
- D 7A

Answer: B

Question 116

For the linear circuit shown in figure,  
when  $R = \infty, V = 20V$   
when  $R = 0, I = 4A$   
when  $R = 5\Omega$  the current  $I$  is



A 1A

B 2A

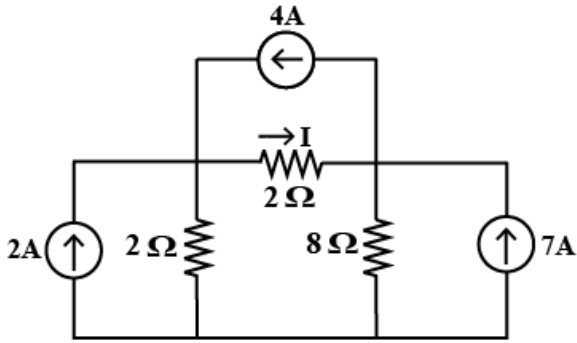
C 3A

D 4A

Answer: B

Question 117

The current  $I$  in the circuit shown in the figure is



A -36.7 A

B -1 A

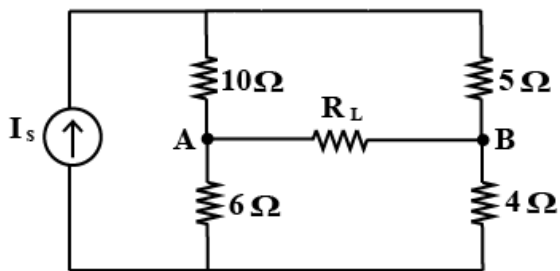
C 4 A

D 6 A

Answer: B

Question 118

In the network shown in the figure, the value of  $R_1$  such that maximum possible power will be transferred to  $R_L$  is



A 5.76Ω

B 6.0Ω

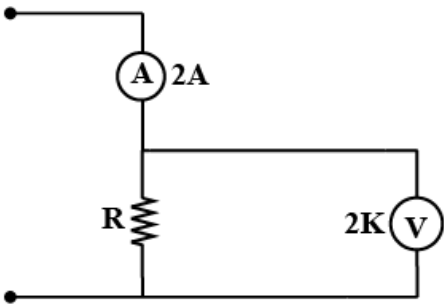
C 10.0Ω

D 15.0Ω

Answer: B

Question 119

A resistance  $R$  is measured by ammeter-voltmeter method. The voltmeter reading is  $200\text{ V}$  and its internal resistance is  $2\text{ K}$ . If the ammeter reading is found to be  $2\text{ A}$ , then value of  $R$  is

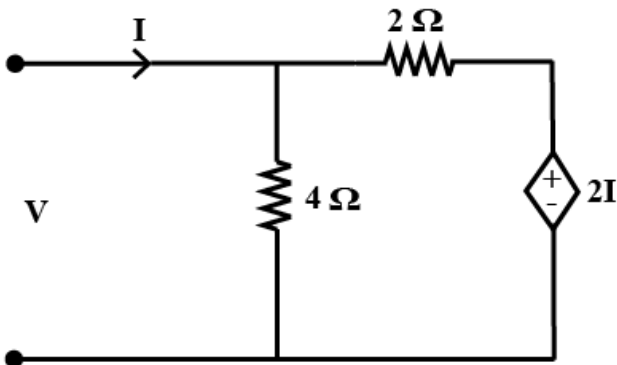


- A  $105.3\Omega$
- B  $100.0\Omega$
- C  $95.3\Omega$
- D  $90.3\Omega$

Answer: A

Question 120

The circuit shown in the given figure is equivalent to a load of



- A  $\frac{4}{3}\Omega$
- B  $\frac{8}{3}\Omega$
- C  $4\Omega$
- D  $2\Omega$

Answer: B

Question 121

The north pole of a magnet is moved away from a metallic ring. The induced current in the ring flows

- A clockwise
- B anticlockwise
- C first anticlockwise and then clockwise
- D first clockwise and then anticlockwise



Answer: B

Question 122

Energy stored in an inductor is given by

- A  $\frac{1}{\sqrt{2}}(LI)^2$
- B  $\frac{1}{\sqrt{2}}L^2I$
- C  $\frac{1}{\sqrt{LI}}$
- D  $\frac{1}{\sqrt{2}}LI^2$

Answer: D

Question 123

A coil with a certain number of turns has a specified time constant. If the number of turns is doubled, its time constant would

- A remain unaffected
- B become double
- C become four-fold
- D get halved

Answer: B

Question 124

Hysteresis is the phenomenon in the magnetic circuit by which

- A H lags behind B
- B B lags behind H
- C B and H are always same
- D setting up a constant flux is done

Answer: B

Question 125

The flux through each turn of a 100-turn coil is  $(t^3 - 2t)m$  Wh, where 't' is in seconds. Find the magnitude of the induced emf at  $t = 2$  sec

- A 1V
- B 0.8V
- C 0.4V
- D 0.2V

Answer: A

**Question 126**

A circuit has inductance of 2 H. If the circuit current changes at the rate of  $10 \frac{A}{sec}$ , then self-induced emf is

- A 5V
- B 0.2V
- C 20V
- D 10V

**Answer: C**

**Question 127**

The B-H curve for \_\_\_\_ will be a straight line passing through the origin

- A air
- B soft iron
- C hardened steel
- D silicon steel

**Answer: A**

**Question 128**

Magnetic lines of force coming from a magnet

- A intersect at infinity
- B intersect within the magnet
- C cannot intersect at all
- D cancel at pole faces

**Answer: C**

**Question 129**

The main advantage of temporary magnets is that we can

- A change the magnetic flux
- B use any magnetic material
- C decrease the hysteresis loss
- D magnetize without any source

**Answer: A**

**Question 130**

The magnetic material used in permanent magnets is

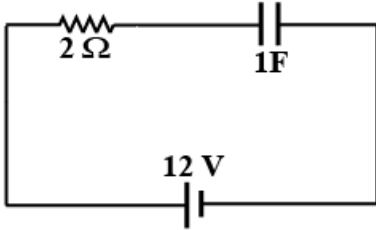
- A iron
- B soft steel

- C nickel
- D hardened steel

Answer: D

Question 131

For the circuit shown in figure, the voltage across the capacitor during steady state condition is



- A 0 V
- B 4 V
- C 6 V
- D 12 V

Answer: D

Question 132

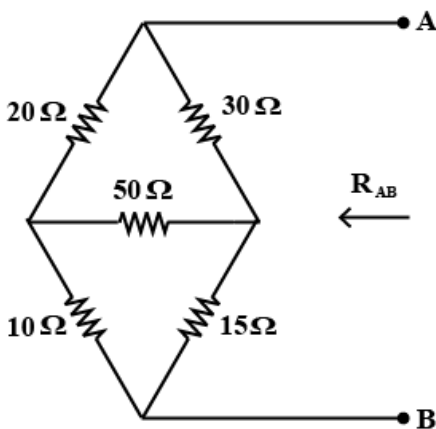
A current of 5 mA flows in a resistanceless choke from a 200 V alternating source. The energy consumed in the choke is

- A 0 J
- B 4.4 J
- C 500 J
- D 1000 J

Answer: A

Question 133

Find  $R_{AB}$  for the circuit shown in figure



- A  $18\ \Omega$
- B  $30\ \Omega$

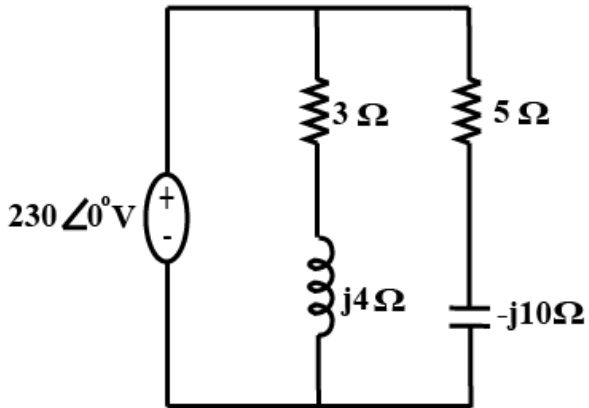
C  $45\Omega$

D  $68\Omega$

Answer: A

Question 134

Calculate the total susceptance of the circuit shown in figure



A  $6.67\mathcal{U}$

B  $1.87\mathcal{U}$

C  $0.16\mathcal{U}$

D  $0.08\mathcal{U}$

Answer: D

Question 135

The Q-factor of a parallel resonant circuit is given by

A  $\frac{1}{R}\sqrt{\frac{L}{C}}$

B  $\frac{1}{R}\sqrt{\frac{C}{L}}$

C  $\frac{1}{R}\sqrt{\frac{1}{LC}}$

D  $\frac{R}{\sqrt{LC}}$

Answer: B

Question 136

In an R-L series circuit, the phase difference between applied voltage and circuit current will increase if

A  $X_L$  is increased

B  $R$  is increased

C  $X_L$  is decreased

D supply frequency is decreased

Answer: A

Question 137

A series circuit has  $R = 4\Omega$ ,  $X_L = 12\Omega$  and  $X_C = 9\Omega$  and is supplied with 200 V, 50 Hz Calculate the power

- A 6400 W
- B 8000 W
- C 14,400 W
- D 19,200 W

Answer: A

Question 138

Two sinusoidal currents are given by the equations  $i_1 = 50 \sin(\omega t + \frac{\pi}{4})$  and  $i_2 = 25 \sin(\omega t + \frac{\pi}{6})$ . The phase difference between them in \_\_\_\_\_ degrees.

- A 15
- B 30
- C 45
- D 75

Answer: D

Question 139

The reactance of 1 farad capacitance when connected to a DC circuit is

- A infinite
- B  $1\Omega$
- C  $0.5\Omega$
- D zero ohms

Answer: A

Question 140

A supply voltage of 230 V, 50 Hz is fed to a residential building. Write down its equation for instantaneous value

- A  $163 \sin 314.16t$
- B  $230 \sin 314.16t$
- C  $325 \sin 314.16t$
- D  $361 \sin 314.16t$

Answer: C

Question 141

The AC bridge used for measurement of dielectric loss of capacitor is

- A Anderson bridge
- B Schering bridge
- C Wien bridge
- D Hay's bridge

**Answer: B**

**Question 142**

**In electro-dynamometer ammeter, the deflection of the pointer is proportional to**

- A mean of currents in fixed coil and moving coil
- B square of the current in moving coil
- C RMS value of current in fixed coil
- D mean-square of currents in fixed coil and moving coil

**Answer: D**

**Question 143**

**In which of the following transformers, is the secondary winding always kept closed ?**

- A Current transformer
- B Potential transformer
- C Power transformer
- D Distribution transformer

**Answer: A**

**Question 144**

**Two holes are drilled in the disc on a diameter of energy-meter to**

- A increase ventilation
- B reduce the weight of disc
- C eliminate creeping on no-load
- D increase deflection torque

**Answer: C**

**Question 145**

**Which of the following instruments has the highest torque/weight ratio among the given instruments ?**

- A Attraction type MI instrument
- B Repulsion type MI instrument
- C Permanent magnet moving coil instrument
- D Electro-dynamometer instrument

Answer: C

Question 146

If current through the operating coil of a moving iron instrument is doubled, the operation force becomes

- A one and a half times
- B 2 times
- C 3 times
- D 4 times

Answer: D

Question 147

In moving iron instruments, the iron moves in direction to cause

- A coil inductance to be constant
- B mutual inductance to be minimum
- C minimum reluctance path
- D decrease in the flux passing through is

Answer: C

Question 148

A moving coil instrument has a resistance of  $10\Omega$  and gives full scale deflection at 0.5 V potential difference across it. How can it be adapted to measure a current upto 100 A ?

- A by connecting shunt resistance of  $0.005\Omega$  across the meter
- B by connecting shunt resistance of  $0.05\Omega$  across the meter
- C by connecting shunt resistance of  $5\Omega$  across the meter
- D by connecting shunt resistance of  $10\Omega$  across the meter

Answer: A

Question 149

The multiplying power of the shunt of a milliammeter is 8. If the circuit is 200 mA, then current through the meter is

- A 25 mA
- B 200 mA
- C 1600 mA
- D 3200 mA

Answer: A

Question 150

The material to be used in the manufacture a standard resistor should be of

- A low resistivity
- B high resistivity and low temperature coefficient
- C high temperature coefficient
- D low resistivity and high temperature coefficient

Answer: B

**Question 151**

In a 3-phase induction motor crawling happens at

- A any speed
- B no-load speed
- C odd multiples of fundamental
- D even multiples of fundamental

Answer: C

**Question 152**

A 4-pole, 3-phase induction motor runs at 1440 rpm on a 50 Hz supply. Find the slip speed

- A 2940 rpm
- B 1500 rpm
- C 1440 rpm
- D 60 rpm

Answer: D

**Question 153**

Low voltage windings are placed nearer to the core in the case of concentric windings because

- A it reduces hysteresis loss
- B it reduces eddy current loss
- C it reduces insulation requirement
- D it reduces leakage fluxes

Answer: C

**Question 154**

If  $K$  is the phase-to-phase voltage ratio, then the line-to-line voltage ratio in a 3-phase  $Y - \Delta$  transformer is

- A  $K$
- B  $\frac{K}{\sqrt{3}}$
- C  $\sqrt{3}K$



D  $\frac{\sqrt{3}}{K}$

Answer: C

Question 155

In an auto-transformer of voltage ratio  $\frac{V_1}{V_2}$ ,  $V_1 > V_2$ , the fraction of power transferred inductively is proportional to

A  $\frac{V_1}{(V_1+V_2)}$

B  $\frac{V_2}{V_1}$

C  $(V_1 - V_2)(V_1 + V_2)$

D  $\frac{(V_1-V_2)}{V_1}$

Answer: D

Question 156

Stepped core is used in transformers in order to reduce

A volume of iron

B volume of copper

C iron loss

D reluctance of core

Answer: B

Question 157

Commutation conditions at full load for large DC machines can be efficiently checked by the

A Brake test

B Swinburne's test

C Hopkinson's test

D Field test

Answer: C

Question 158

The emf induced in a DC shunt generator is 230 V. The armature resistance is  $0.1\Omega$ . If the armature current is 200 A, the terminal voltage will be

A 200V

B 210V

C 230V

D 250V

Answer: B

**Question 159**

The commutator of a DC generator acts as

- A an amplifier
- B a rectifier
- C a load
- D a multiplier

**Answer: B**

**Question 160**

Fleming's left hand rule is applicable to

- A DC generator
- B DC motor
- C Alternator
- D Transformer

**Answer: B**

**Question 161**

Which of the following single phase motor is available with speed as low as one revolution per minute?

- A Shaded
- B Reluctance
- C Hysteresis
- D Universal

**Answer: A**

**Question 162**

A vacuum cleaner employs \_\_\_\_\_ motor

- A resistance split phase
- B capacitor start
- C shaded pole
- D single phase series

**Answer: D**

**Question 163**

In capacitor start single phase induction motor, the current in the

- A supply lines leads the voltage

- B starting winding lags the voltage
- C main winding leads the voltage
- D starting winding leads the voltage

Answer: D

**Question 164**

In a single phase induction motor, speed sensitive centrifugal switch is connected in \_\_\_winding

- A parallel with main
- B series with main
- C parallel with starting
- D series with starting

Answer: D

**Question 165**

At starting, the current through the starting winding ( $I_s$ ) of single phase induction motor

- A lags 'V' by  $90^\circ$
- B leads 'V' by  $90^\circ$
- C is nearly in phase with 'V'
- D lags 'V' by  $75^\circ$

Answer: C

**Question 166**

In a single phase induction motor at start, the two revolving fields produce

- A unequal torques in the rotor conductors
- B no torque in the rotor conductor
- C equal and opposite torques in the rotor conductors
- D equal torques in same direction in the rotor conductors

Answer: C

**Question 167**

A synchronous motor can be used as synchronous condenser when it is

- A over excited
- B over loaded
- C under excited
- D under loaded

Answer: A

**Question 168**

Which of the following methods would give a higher than actual value of regulation of an alternator?

- A ZPF method
- B MMF method
- C EMF method
- D ASA method

**Answer: C**

**Question 169**

If the excitation an alternator operating in parallel with other alternator is increased above the normal value of excitation, its.

- A power factor becomes more lagging
- B power factor becomes more leading
- C output current decreases
- D output kW decreases

**Answer: A**

**Question 170**

In an alternator, the effect of armature reaction is minimum at power factor of

- A 0.5 lagging
- B 0.866 lagging
- C 0.866 leading
- D unity

**Answer: D**

**Question 171**

Damper winding in synchronous motors is used to

- A suppress hunting
- B improve power factor
- C develop reluctance torque
- D improve the efficiency

**Answer: A**

**Question 172**

Turbo alternators have rotors of

- A small diameter and long axial length

- B large diameter and long axial length
- C large diameter and small axial length
- D small diameter and axial length

Answer: A

**Question 173**

Which of the following equipment is used to limit short-circuit current level in sub-station ?

- A Isolators
- B Lightning switch
- C Coupling
- D Series reactor

Answer: D

**Question 174**

Power distribution by cable is generally adopted for line length

- A less than 10 km
- B above 10 km
- C less than 50 km
- D above 50 km

Answer: A

**Question 175**

The leakage resistance of a 50 km long cable is  $1M\Omega$ . For a 100 km long cable it will be

- A  $0.5M\Omega$
- B  $2M\Omega$
- C  $0.66M\Omega$
- D None of these

Answer: A

**Question 176**

If voltage is increased by 'n' times, the size of the conductor would

- A Increase by 'n' times
- B reduce by ' $\frac{1}{n}$ ' times
- C increase by ' $n^2$ ' times
- D reduce by ' $\frac{1}{n^2}$ ' times

Answer: D

**Question 177**

The maximum demand of a consumer is 2 kW and his daily energy consumption is 24 units. His load factor is \_\_\_\_\_%

- A 24
- B 41.6
- C 50
- D 80

**Answer: C**

**Question 178**

A wire placed on the top of a transmission line acts as:

- A a phase wire
- B neutral
- C a transmission wire
- D ground wire

**Answer: D**

**Question 179**

The conductor, by means of which the metal body of an equipment or an application is connected to the earth, is known as

- A Neutral continuity conductor
- B Earth discontinuity conductor
- C Earth continuity conductor
- D Neutral discontinuity conductor

**Answer: C**

**Question 180**

Which insulation is most widely used for covering wires/cables used in internal wiring ?

- A Paper
- B Wood
- C Glass
- D PVC

**Answer: D**

**Question 181**

Which of the following types of wiring preferred for workshop lighting ?

- A Casing Capping

- B Batten wiring
- C Concealed
- D Surface conduit wiring

Answer: D

**Question 182**

The earthing electrodes should be placed within what distance in meters from the building whose installation system is being earthed ?

- A 4
- B 2.5
- C 1.5
- D 0.5

Answer: D

**Question 183**

Supplier's fuse, which is provided in domestic wiring system is

- A after the energy meter
- B before the energy meter
- C before distribution
- D after main switch

Answer: A

**Question 184**

As per recommendation of ISI, the maximum number of points of lights, fans and socket outlets that can be connected in one sub-circuit is

- A 8
- B 10
- C 15
- D 20

Answer: B

**Question 185**

In a 3-pin plug

- A all the three pins are of the same size
- B two pins are of the same size but third one is thicker
- C two pins are of the same size but third one is thicker and longer
- D all the three pins are of different sizes

Answer: C

**Question 186**

The acceptable value of grounding resistance to domestic application is

- A  $0.1\Omega$
- B  $1\Omega$
- C  $10\Omega$
- D  $100\Omega$

Answer: B

**Question 187**

Inside the earths pit, the earthing electrode should be placed

- A vertical
- B horizontal
- C inclined at  $45^0$
- D inclined at any angle other than  $45^0$

Answer: A

**Question 188**

To reduce the cost of the electricity generated

- A the load factor and diversity factor must be low
- B The load factor must be low but diversity factor high
- C The load factor must be high but diversity factor low
- D The load factor and diversity factor must be high

Answer: D

**Question 189**

The colour of the light given out by a sodium vapour discharge lamp is

- A pink
- B bluish green
- C yellow
- D blue

Answer: C

**Question 190**

The transformer used in a welding set is



- A step-up-transformer
- B step-down transformer
- C constant current transformer
- D booster transformer

Answer: B

**Question 191**

The domestic load that has UPF is

- A Fan
- B Mixer
- C Tube
- D Filament lamp

Answer: D

**Question 192**

An industrial consumer has a daily load pattern of 2000 kW, 0.8 lag for 12 hours and 1000 kW UPF for 12 hours. The load factor is

- A 0.5
- B 0.75
- C 0.6
- D 2.0

Answer: C

**Question 193**

Dielectric loss is proportional to

- A  $[frequency]^2$
- B  $frequency$
- C  $[frequency]^2$
- D  $[frequency]^3$

Answer: B

**Question 194**

Which of the following applications needs frequent starting and stopping of electric motor ?

- A Air- conditioner
- B Lifts and hoists
- C Grinding mill

D Paper mill

Answer: B

Question 195

In a CE (common emitter) transistor,  $V_{cc} = 12V$  and the zero signal collector current is 1 mA. Determine the operating point when collector load ( $R_C$ ) is  $6k\Omega$

A 6 V, 1mA

B 6 V, 2mA

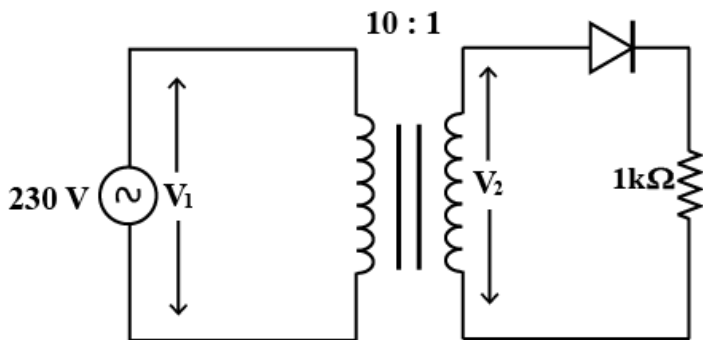
C 12 V, 1 mA

D 12 V, 2 mA

Answer: A

Question 196

An AC supply of 230 V is applied to half wave rectifier through transformer of turns ratio 10 : 1 as shown in figure. Determine the peak inverse voltage across the diode



A 37.6 V

B 32.5 V

C 23.0 V

D 14.54 V

Answer: B

Question 197

The potential barrier existing across pn junction

A prevents flow of minority carriers

B prevents flow of majority carriers

C prevents total recombination of holes and electrons

D prevents neutralisation of acceptor and donor

Answer: C

Question 198

The technique of adding a precise amount time between the trigger point and beginning of the scope sweep in a CRO is known as

- A Free running sweep
- B Delayed sweep
- C Triggered sweep
- D Non-sawtooth sweep

**Answer: B**

**Question 199**

**In a CRO, a sinusoidal waveform of a certain frequency is displayed. The value of the quantity that can be made out by observation is**

- A RMS value of the sine wave
- B average value of the sine wave
- C form factor of the sine wave
- D peak-peak value of the sine wave

**Answer: D**

**Question 200**

**In a cathode Ray Tube, the focussing anode is located**

- A after accelerating anode
- B between pre- accelerating and accelerating anodes
- C before pre-acceleration anode
- D just after electron- gun

**Answer: B**