



SSC JE Electrical Engineering 25th May 2014 Shift-1

All rights reserved. No part of this publication may be reproduced, distributed, or transmitted in any form or by any means, electronic, mechanical, photocopying, recording or otherwise, or stored in any retrieval system of any nature without the permission of cracku.in, application for which shall be made to support@cracku.in

General Intelligence and Reasoning

Instructions

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

Question 1

5 : 26 :: 8 : ?

- A 67
- B 64
- C 65
- D 66

Answer: C

Explanation:

$$5^2 + 1 = 25 + 1 = 26$$

$$8^2 + 1 = 64 + 1 = 65$$

$$? = 65$$

Question 2

Pyorrhea : Teeth :: Eczema : ?

- A Skin
- B Heart
- C Lungs
- D Eye

Answer: A

Explanation:

Pyorrhea is a foul-smelling disorder of teeth similarly Eczema is a skin disease

Question 3

$N \times O : 14 \times 15 :: G \times S : ?$

- A 5×17
- B 15×16
- C 6×18
- D 7×19

Answer: D

Explanation:

$$G \times S = 7 \times 19$$

$$\therefore G = 7 \text{ and } S = 19$$

Question 4

Writer : Book :: ?

- A Composer : Song
- B Building : Architect
- C Poem : Poet
- D Chair : Carpenter

Answer: A

Explanation:

Writer is related to book similarly,

Composer is related to song.

Question 5

BMCX : CNDY :: ? : EXFW

- A DWEV
- B DUGT
- C FGUT
- D DTGU

Answer: A

Explanation:

In the BMCX : CNDY

B + 1 → C

M + 1 → N

C + 1 → D

X + 1 → Y

Similarly,

E - 1 → D

X - 1 → W

F - 1 → E

W - 1 → V

So, ? = DWEV

∴ Option A is the correct answer.

Question 6

24 : 288 :: 22 : ?

- A 248
- B 238
- C 240
- D 242

Answer: D

Explanation:

$$(24)^2 / 2 = 576 / 2 = 288$$

$$((22)^2) / 2 = 484 / 2 = 242$$

∴ Option D is the correct option.

Question 7

Car : Garage :: Aircraft : ?

- A Airdrome
- B Shelter
- C Hangar
- D Jetty

Answer: C

Explanation:

Car is parked in garage similarly,
Aircraft is parked in hanger.

Question 8

$3 : 12 :: 4 : ?$
 $8 : 32 :: 5 : ?$

- A $\frac{16}{20}$
- B $\frac{4}{6}$
- C $\frac{5}{6}$
- D $\frac{10}{23}$

Answer: A

Explanation:

$3 \times 4 = 12$
 $8 \times 4 = 32$

similarly,

$4 \times 4 = 16$
 $5 \times 4 = 20$

Instructions

For the following questions answer them individually

Question 9

Which one of the following is always associated with JUSTICE ?

- A Autocracy
- B Hypocrisy
- C Democracy
- D Legitimacy

Answer: D

Explanation:

Legitimacy is always associated with JUSTICE.

Instructions

In the following questions find the odd number/letters/ figure/ numberpair from the given alternatives.

Question 10

- A 21 - 27
- B 9 - 27
- C 9 - 12
- D 15 - 19

Answer: D

Explanation:

Except '15 - 19' remaining all pair divisible by 3.

∴ The correct answer is option D.

Question 11

- A 38 - 76
- B 28 - 84
- C 34 - 76
- D 23 - 64

Answer: D

Explanation:

In the pair "23 - 64", one number odd and another even.

∴ The correct answer is option D.

Question 12

- A 5 - 7
- B 3 - 8
- C 6 - 8
- D 4 - 5

Answer: C

Explanation:

Only 6 and 8 is divisible by 2.

∴ The correct answer is option C.

Question 13

- A Sphere
- B Triangle
- C Circle
- D Oval

Answer: B

Explanation:

Except **triangle** remaining all are circular shape with no angles.

Question 14

- A Rosemary
- B Mint
- C Peepal
- D Coriander

Answer: C

Explanation:

Rosemary, mint and coriander all are plant while peepal is a tree.

Question 15

- A ZXUR
- B ZXWU
- C YWVT
- D WUTR

Answer: A

Explanation:

In ZXUR,

Z - 2 → X - 2 → U - 4 → R

In ZXWU,

Z - 2 → X - 1 → W - 2 → U

In YWVT,

Y - 2 → W - 1 → V - 2 → T

In WUTR,

W - 2 → U - 1 → T - 2 → R

Odd term = ZXUR

Question 16

- A Gold
- B Iron
- C Brass
- D Copper

Answer: C

Explanation:

All except Brass, all are metals, while Brass is alloy.

Question 17

- A Thrive
- B Excite
- C Flourish

D Prosper

Answer: B

Explanation:

Flourish, prosper, and thrive are all synonyms; excite does not mean the same thing

Question 18

A Krishna

B Vaigai

C Kaveri

D Narmada

Answer: D

Explanation:

All except Narmada are rivers which flow into Bay of Bengal, while Narmada flows into the Arabian Sea.

∴ Option D is correct answer.

Instructions

For the following questions answer them individually

Question 19

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

(1) Tissue

(2) Cell

(3) Organ

A (2), (3), (1)

B (1), (2), (3)

C (3), (1), (2)

D (2), (1), (3)

Answer: D

Explanation:

Meaningful order - Cell, Tissue, Organ

∴ Option D is the correct option

Question 20

Which item will appear third in the dictionary ?

A pair

B pain

C page

D pall

Answer: A

Explanation:

Order according to the dictionary,

page, pain, pair, pall

∴ 'pair' will appear third in the dictionary.

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 21

1, 2, 8, ?, 148, 765

- A 74
- B 32
- C 40
- D 33

Answer: D

Explanation:

The series follows pattern as,

$$1 \times 1 + 1^2 = 2$$

$$2 \times 2 + 2^2 = 4 + 4 = 8$$

$$8 \times 3 + 3^2 = 24 + 9 = 33$$

$$33 \times 4 + 4^2 = 132 + 16 = 148$$

$$148 \times 5 + 5^2 = 740 + 25 = 765$$

Missing term = 33

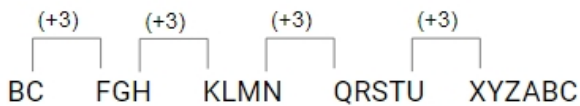
Question 22

BC, FGH, KLMN, ?, XYZABC

- A QRSTU
- B RSTUV
- C PQRST
- D QRST

Answer: A

Explanation:



Missing term = QRSTU

Question 23

DE, ?, JL, MO

- A LN
- B CE
- C GI
- D AC

Answer: C

Explanation:

The series follows pattern as,

$$(D + 3 = G), (E + 3 = I)$$

$$(G + 3 = J), (I + 3 = L)$$

$$(J + 3 = M), (L + 3 = O)$$

The missing term = JL

Question 24

7, 12, 19, 28, 39, ?

A 51

B 49

C 57

D 52

Answer: D

Explanation:

The series follows pattern as,

$$7 + 5 = 12$$

$$12 + 7 = 19$$

$$19 + 9 = 28$$

$$28 + 11 = 39$$

$$39 + 13 = 52$$

Missing term = 52

Question 25

DMP, FLN, HKL, JJJ, ?

A MIH

B MII

C LIH

D MIF

Answer: C

Explanation:

The series follows pattern as,

$$(D + 2 = F), (M - 1 = L), (P - 2 = N)$$

$$(F + 2 = H), (L - 1 = K), (N - 2 = L)$$

$$(H + 2 = J), (K - 1 = J), (L - 2 = J),$$

$$(J + 2 = L), (J - 1 = I), (J - 2 = H),$$

Missing term = LIH

Question 26

Z3A, W9D, ?, Q81J, N243M

- A R31E
- B V21H
- C T27G
- D S29F

Answer: C

Explanation:

The pattern follows as,

$$3 \times 3 = 9$$

$$9 \times 3 = 27$$

$$27 \times 3 = 81$$

$$81 \times 3 = 243$$

Missing term by option = T27G

Instructions

For the following questions answer them individually

Question 27

If 'EVENT' is coded as 54552 then 'REVENGE' is coded as :

- A 9545575
- B 8455753
- C 9845575
- D 8755475

Answer: A

Explanation:

In the EVENT,

E coded as 5.

V coded as 4.

N coded as 5.

T coded as 2.

Similarly,

'REVENGE' is coded as '_5455_5'.

By the option A), 9545575.

∴ Option A is the correct answer.

Question 28

Figure

- A 15.300
- B 1.5300
- C 153.00
- D 1530.00

Answer: B

Question 29

If BACTERIA can be written as ABIARCET then how PROTOZOA can be written :

- A AROZOTOPO
- B ORPTOZOA
- C APORZOOT
- D TOZOAPRO

Answer: C

Explanation:

In the 'ABIARCET' 1st, 3rd, 5th, and 7th letter replace by 8th, 7th, 6th and 5th letter respectively so, 'PROTOZOA' can be written as 'APORZOOT'.

∴ Option C is the correct answer.

Question 30

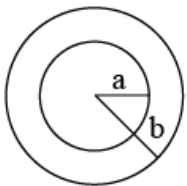
Unscramble these letters to make a EYDSNY

- A mountain
- B city
- C animal
- D river

Answer: B

Question 31

If radius b is double that of radius a, the area of the smaller circle to that of the larger circle is in proportion :



- A 1 : 16
- B 1 : 2
- C 1 : 4
- D 1 : 8

Answer: C

Explanation:

$$b = 2a$$

$$\text{area of circle} = \pi r^2$$

$$\text{The area of the smaller circle to that of the larger circle is in proportion} = \pi a^2 : \pi b^2 = a^2 : 4a^2 = 1 : 4$$

Instructions

Insert the arithmetic signs in the following numerical figure:

Question 32

6, 3, 6 = 24

A $+ \times$

B $- +$

C $- \times$

D $- \div$

Answer: A

Explanation:

From option A,

LHS,

$$6 + 3 \times 6$$

$$= 6 + 18$$

$$= 24$$

RHS

Hence, Option A is the correct answer.

Question 33

9, 3, 4, 6 = 29

A $\times + -$

B $+ - \times$

C $\times - +$

D $+ \times -$

Answer: C

Explanation:

From the option C) -

LHS-

$$9 \times 3 - 4 + 6$$

$$= 27 - 4 + 6$$

$$= 29$$

RHS

\therefore Option C is correct answer.

Instructions

For the following questions answer them individually

Question 34

If $7x - 5y = 20$ and $12x + 5y = 75$, what is the value of xy ?

A 30

B 15

C 18

D 20

Answer: B

Explanation:

$$7x - 5y = 20 \text{ ---(1)}$$

$$12x + 5y = 75 \text{ ---(2)}$$

$$\text{Eq(1) + (2),}$$

$$19x = 95$$

$$x = 5$$

From eq(1),

$$7 \times 5 - 5y = 20$$

$$5y = 15$$

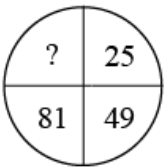
$$y = 3$$

$$xy = 5 \times 3 = 15$$

Instructions

In the following questions, select the missing number from the given responses.

Question 35



A 100

B 36

C 121

D 42

Answer: C

Explanation:

$$(5)^2 = 25$$

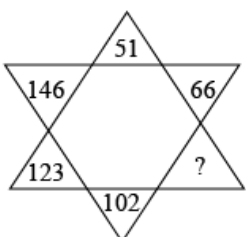
$$(7)^2 = 49$$

$$(9)^2 = 81$$

$$(11)^2 = 121$$

∴ The correct answer is option C.

Question 36



- A 82
- B 81
- C 83
- D 84

Answer: C

Explanation:

$$7^2 + 2 = 51$$

$$8^2 + 2 = 66$$

$$9^2 + 2 = 83$$

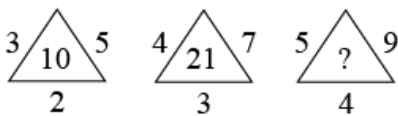
$$10^2 + 2 = 102$$

$$11^2 + 2 = 123$$

$$12^2 + 2 = 146$$

∴ the correct answer is option C.

Question 37



- A 24
- B 45
- C 63
- D 36

Answer: D

Explanation:

Question follows pattern as,

$$5 \times 2 = 10$$

$$7 \times 3 = 21$$

Similarly,

$$9 \times 4 = 36$$

Instructions

For the following questions answer them individually

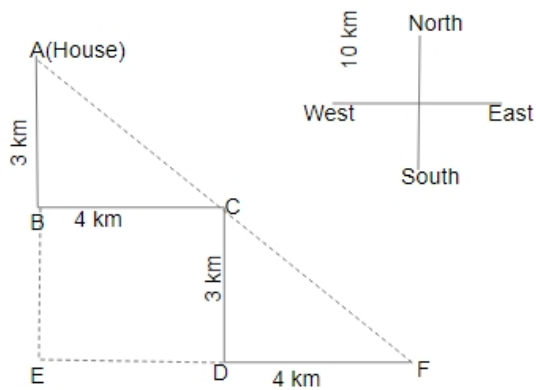
Question 38

Ram started from his house and travelled 3 km towards South. Then turned left and travelled 4 km. Then again he turned right and travelled 3 km. From there, he turned left and travelled 4 km. At what distance is he now from his house ?

- A 15 km
- B 5 km
- C 10 km
- D 14 km

Answer: C

Explanation:



From the figure,

$$AE = 3 + 3 = 6 \text{ km}$$

$$EF = 4 + 4 = 8 \text{ km}$$

In $\triangle AEF$,

$$(AF)^2 = (AE)^2 + (EF)^2$$

$$(AF)^2 = (6)^2 + (8)^2$$

$$(AF)^2 = 36 + 64$$

$$(AF)^2 = 100$$

$$AF = 10 \text{ km}$$

Distance = 10 km

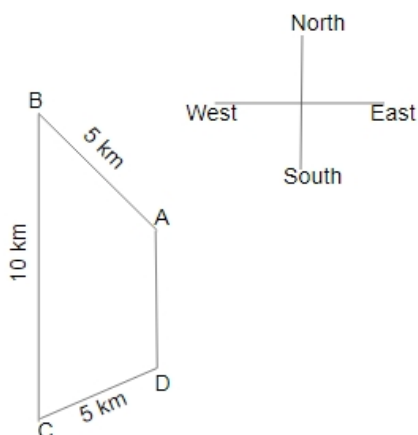
Question 39

From point A, Ravi walks 5 km North-West to point B, from point B he walks 10 km South to point 'C'. From point C he moves 5 km North-East to point D. From point D he was back to point A. If Ravi always walked in a straight line what figure has he traced ?

- A Trapezium.
- B Rhombus
- C Kite
- D Parallelogram

Answer: A

Explanation:

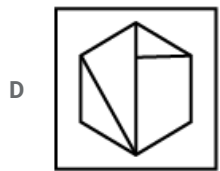
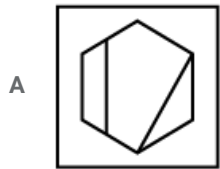


From the diagram, Ravi traced the Trapezium figure.

Question 40

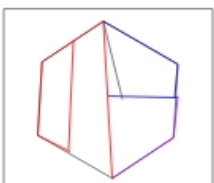
Identify the answer figure from which the given pieces in question figure are found.

Question figure :



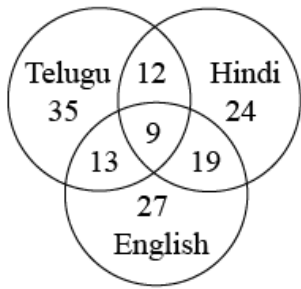
Answer: B

Explanation:



Question 41

This Venn diagram shows the no. of people who can speak Telugu, Hindi and English. Find out the total no. of people who can speak all the three languages?



- A 19
- B 13
- C 12
- D 9

Answer: D

Explanation:

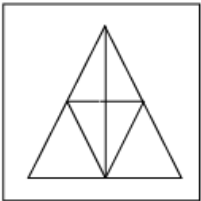
The total no. of people who can speak all the three languages = 9

\$\$

∴ The correct answer is option D.

Question 42

How many triangles are there in the figure ?



- A 7
- B 13
- C 11
- D 9

Answer: B

Explanation:

Total number of triangles = 13

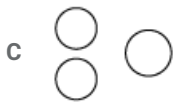
∴ The correct answer is option B.

Question 43

Indicate the est relation among blackboard, classroom and school.



A

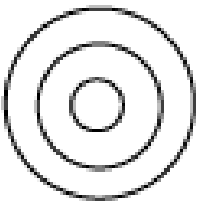


Answer: D

Explanation:

Blackboard is in the class and class s in the school.

So, related Venn diagram,



Instructions

In the following questions, one or two Statements is given followed by two Conclusions I, and II. You have to consider the statement to be true, even if it seems to be at variance from commonly known facts. You are to decide which of the given conclusions can definitely be drawn from the given statement. Indicate your answer.

Question 44

Statement: Some fishes are crocodiles.

Some Crocodiles are snakes.

No snake is snail.

All snails are tortoises.

Conclusion:

I. Some snakes are Crocodiles.

II. Some Crocodiles are tortoise

A None of these Conclusions I and II follow

B Conclusion I follow

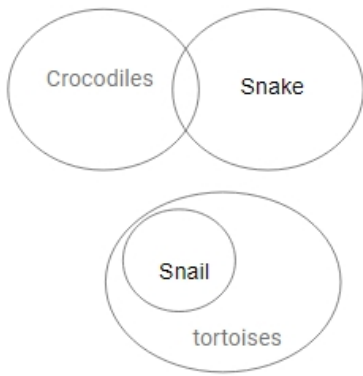
C Conclusion II follow

D Both the Conclusions I and II follow

Answer: B

Explanation:

Venn diagram,



From the Venn diagram, only conclusion I follow.

Question 45

Statement:

Jessica has 4 children. Two of them have blue eyes and two have brown eyes. Half of the children are girls.

Conclusions:

- I. At least one girl has blue eyes
- II. Two of the children are boys.
- III. The boys have brown eyes.

- A Conclusion I only
- B Conclusion II only
- C Conclusion I and III only
- D Conclusion II and III only

Answer: B

Explanation:

Only Statement II is true because "Two of the children are boys" is definitely true.

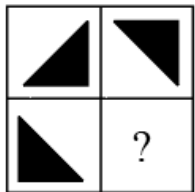
∴ Option B is the correct answer.

Instructions

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

Question 46

Question figure :

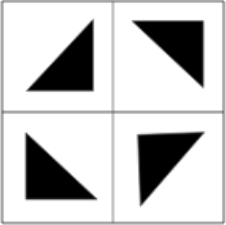


- A
- B



Answer: C

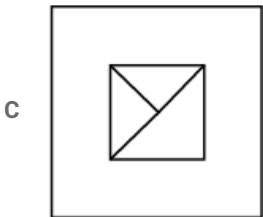
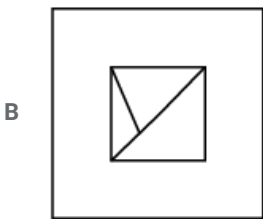
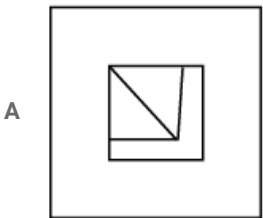
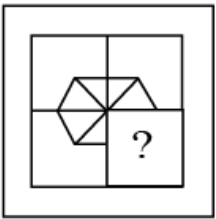
Explanation:

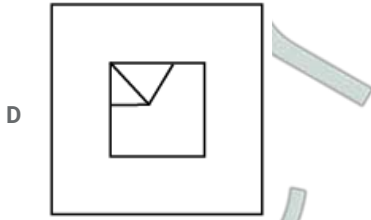


∴ The correct option is D.

Question 47

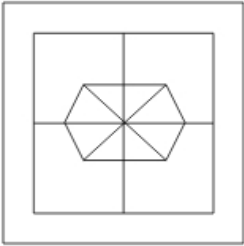
Question figure :





Answer: D

Explanation:



∴ The correct answer is option D.

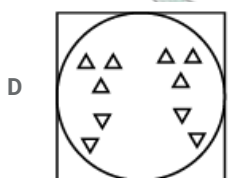
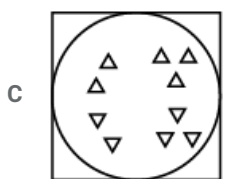
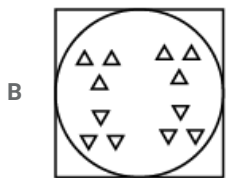
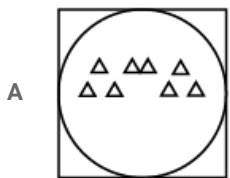
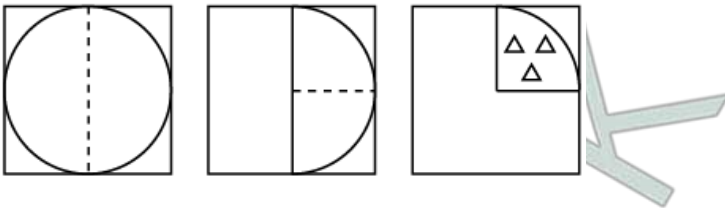
Instructions

For the following questions answer them individually

Question 48

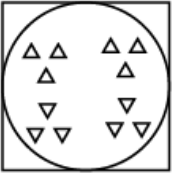
A piece of paper is folded and cut as shown below in the question figures. From the given answer figures, indicate how it will appear when opened.

Question figure :



Answer: B

Explanation:




∴ The correct answer is option B.

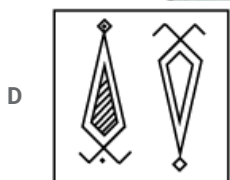
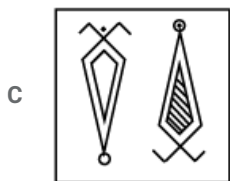
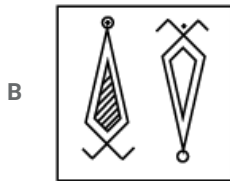
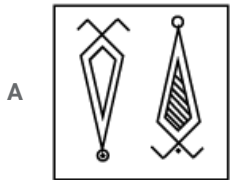
Question 49

if a mirror is placed on the line AB, then which of the answer figures is the right image of the given figure:

Question figure:

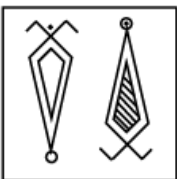


A  B



Answer: C

Explanation:



∴ The correct answer is option C.

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 character accordingly.

Z	?	S
J	G	?
?	T	P

- A WCV
- B RHS
- C WCW
- D RQM

Answer: C

Explanation:

$$Z - 3 = W - 4 = S$$

$$J - 3 = G - 4 = C$$

$$W - 3 = T - 4 = P$$

Missing character = WCW

∴ The correct answer is option C.

General Awareness

Instructions

For the following questions answer them individually

Question 51

During National emergency, the following article cannot be suspended:

- A Article 20
- B Article 17
- C Article 21
- D Article 19

Answer: C

Question 52

Which one of the following states has a separate Constitution ?

- A Sikkim
- B Assam
- C Jammu and Kashmir
- D Arunachal Pradesh

Answer: C

Question 53

"Origin of Species by Natural Selection" was written by:

- A William Harvey

- B Lamarck
- C Charles Darwin
- D Wallace

Answer: C

Question 54

How many islands are there in Lakshadweep ?

- A 47
- B 17
- C 27
- D 36

Answer: C

Question 55

Cockroach is:

- A Sanguivorous
- B Carnivorous
- C Herbivorous
- D Omnivorous

Answer: D

Question 56

Which of the following plant is grown for the reclamation of ravines ?

- A Eucalyptus globulus
- B Prosopis juliflora
- C Dalbergia sissoo
- D All of the above

Answer: B

Question 57

The Brahma Samaj was founded by:

- A Keshab Chandra Sen
- B Raja Rammohan Roy
- C Devendranath Tagore
- D Dayananda Saraswathi

Answer: B

Question 58

The banks are required to maintain a certain ratio between their cash in hand and total assets. This is called :

- A CLR (Central Liquid Reserve)
- B SBR (Statutory Bank Ratio)
- C SLR (Statutory Liquid Ratio)
- D CBR (Central Bank Reserve)

Answer: C

Question 59

The chemical substance present in bones and teeth is :

- A $Ca_3(BO_3)_2$
- B $Ca(NO_3)_2$
- C $Ca_3(PO_4)_2$
- D CaF_2

Answer: C

Question 60

What is the primary effect of excess phosphorous in the aquatic environment called ?

- A Radiation
- B Fixation
- C Nitrification
- D Eutrophication

Answer: D

Question 61

MS Office, Photoshop and Animagic are examples of:

- A Device driver
- B Application software
- C System software
- D Operating system

Answer: B

Question 62

Indian Income Tax is:

- A Indirect and Progressive
- B Direct and Proportional

C Indirect and Proportional

D Direct and Progressive

Answer: D

Question 63

NABARD is a:

A Department

B Bank

C Bureau

D Board

Answer: B

Question 64

The onset of reproductive life is called :

A Maturation

B Menarche

C Menopause

D Puberty

Answer: D

Question 65

Which among the following instruments produces electricity ?

A Transmitter

B Electrografers

C Dynamo

D Voltametre

Answer: C

Question 66

Unit of electric current is :

A Velocity

B Volts

C Ampere

D Calorie

Answer: C

Question 67

Reservation for the Scheduled Castes and Scheduled Tribes in the services has been provided in the Indian Constitution under:

- A Article 375
- B Article 315
- C Article 335
- D Article 365

Answer: C

Question 68

Nucleolus is present within the:

- A Lysosome
- B Cytoplasm
- C Mitochondria
- D Nucleus

Answer: D

Question 69

The subject on which both the Centre and State Governments can legislate are contained in:

- A Residuary List
- B The Union List
- C The State List
- D The Concurrent List

Answer: D

Question 70

Plants are green because of the presence of a pigment called:

- A Oxygen
- B Glucose
- C Nitrogen
- D Chlorophyll

Answer: D

Question 71

One billion bytes is approximately equal to:

- A Gigabyte
- B Megabyte

C Terabyte

D Petabyte

Answer: A

Question 72

The term 'NIFE' refers to:

A Ocean floor

B Earthquakes

C Core of the earth

D Crust of the earth

Answer: C

Question 73

The river cauvery originates from which of the following states ?

A Madhya Pradesh

B Andhra Pradesh

C Tamil Nadu

D Karnataka

Answer: D

Question 74

The Jawaharlal Nehru Port is located at :

A Kolkata

B Paradip

C Cochin

D Mumbai

Answer: D

Question 75

Which type of energy is converted into electrical energy by a battery ?

A Thermal

B Mechanical

C Chemical

D Biological

Answer: C

Question 76

Birthday of which Indian personality is celebrated on 2nd October along with M.K. Gandhi?

- A V.P. Singh
- B Rabindranath Tagore
- C Bal Gangadhar Tilak
- D Lal Bahadur Shastri

Answer: D

Question 77

The 24th Thirthankara of Jainism

- A Mahaveera
- B Vrushabha
- C Parshwanatha
- D Ashwagosha

Answer: A

Question 78

Mohamud Ghazni's last famous expedition to Hindustan was against:

- A Somanath
- B Kalinjar
- C Kannauj
- D Mathura

Answer: A

Question 79

Savanna grasslands in Brazil are called:

- A Campos
- B Downs
- C Prairies
- D Pampas

Answer: A

Question 80

Which of the following is a triploid plant ?

- A Orange
- B Wheat

C Banana

D Mango

Answer: C

Question 81

The fundamental duties are incorporated in Article 51A of the constitution of India by the:

A 44th Amendment Act

B 41st Amendment Act

C 42nd Amendment Act

D 43rd Amendment Act

Answer: C

Question 82

A consumer is said to be in equilibrium, if:

A He is able to locate new sources of income.

B He is able to fulfill his needs with a given level of income.

C His income and expenditure are equal.

D He can fulfill his needs without consumption of certain items.

Answer: B

Question 83

Which metal gives H_2 , with steam in Red heat condition?

A Pb

B Cu

C Fe

D Ag

Answer: C

Question 84

The source of River Vaigai is in the hills of :

A Cardamom

B Agasthiar

C Amarkantak

D Jawadi

Answer: A

Question 85

The universal energy currency of plants and animals is:

- A ATP
- B Chlorophyll
- C Calorie
- D NADP

Answer: A

Question 86

Air pollution is caused by :

- A Loud speakers
- B Insecticides
- C Sewage
- D Smoke

Answer: D

Question 87

Who among the following can be removed from the office without impeachment ?

- A Chief Election Commissioner
- B President of India
- C Chief Justice of India
- D Governor of a State

Answer: D

Question 88

The fundamental Rights of Indian citizen are contained in :

- A Part VIII of constitution
- B Part III of constitution
- C Part IV of constitution
- D The seventh schedule of the constitution

Answer: B

Question 89

'School Capital' of India is :

- A Lucknow
- B Dehradun

C Bangalore

D Delhi

Answer: B

Question 90

Where in India can you find the highest cricket ground above sea level?

A Guwahati

B Dehradun

C Chail

D Gwalior

Answer: C

Question 91

The fertilizer Nitrolym is:

A $CaCN_2 + C$

B $CaCN_2$

C $CaCN + C$

D $Ca(CN)_2 + CO_2$

Answer: A

Question 92

'Sambalpur' is situated on the bank of which of the following rivers ?

A Mahanadi

B Yamuna

C Saraswati

D Saryu

Answer: A

Question 93

The Per Capita Income is obtained by :

A Dividing the total national capital with the profit earned.

B Summing up the income of the citizens of the country.

C Dividing the national income by the population.

D Estimating the minimum income of individual citizens.

Answer: C

Question 94

Mistral is a cold wind which blows down the valley of:

- A Volga
- B Rhine
- C Rhone
- D Seine

Answer: C

Question 95

The largest nationalized bank of India is the :

- A Central Bank of India
- B State Bank of India
- C Reserve Bank of India
- D Bank of India

Answer: B

Question 96

With increasing quantum number, the energy difference between adjacent energy levels in atoms:

- A Decreases first and then increases
- B Decreases
- C Increases
- D Remains constant

Answer: B

Question 97

Megasthenes was a Greek Ambassador sent by:

- A Seleukos
- B Alexander
- C Philippos
- D Justin

Answer: A

Question 98

In the etching of glass, we use the acid :

- A HBr
- B HCl

C HF

D HI

Answer: C

Question 99

Steppe grassland is found in:

A Russia

B Africa

C South America

D Australia

Answer: A

Question 100

The Sikh religion originated with the teaching of:

A Rangit Singh

B Ramdas

C Guru Nanak

D Govind Singh

Answer: C

General Engineering (Electrical)

Instructions

For the following questions answer them individually

Question 101

A lamp having mean spherical candle power of 800 is suspended at a height of 10 m. Calculate the illumination just below the lamp

A 8000 lux

B 8 lux

C 80 lux

D 800 lux

Answer: B

Question 102

Hydrogen is used in large alternators mainly to

A Reduce eddy current losses

B Reduce distortion of wave form

C Cool the machine

D Strengthen the magnetic field

Answer: C

Question 103

Two wires A and B have the same cross-section and are made of the same material. $R_A = 800 \Omega$ and $R_B = 100 \Omega$. The number of times A is longer than B is

A 5

B 6

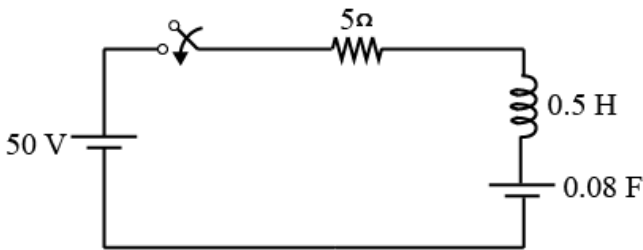
C 2

D 4

Answer: E

Question 104

In the circuit shown in figure, find the transient current $i(t)$ when the switch is closed at $t = 0$, Assume zero initial condition



A $50te^{-0.5t}$

B $50te^{-5t}$

C $100te^{-5t}$

D $100te^{-0.5t}$

Answer: C

Question 105

The Ebers-Moll model is applicable to

A JEET

B BJT

C N MOS transistor

D UJT

Answer: B

Question 106

A DC voltmeter has a sensitivity of $1000 \Omega/\text{watt}$. When it measure half full scale in 100 V range, the current through the voltmeter will be

A 50 mA

B 100 mA

C 1 mA

D 0.5 mA

Answer: D

Question 107

A delta-star transformer has a phase to phase voltage transformation ratio of $a : 1$ [delta phase : star phase]. The line to line voltage ratio of star-delta is given by

A $\frac{a}{1}$

B $\frac{\sqrt{3}}{\sqrt{a}}$

C $\frac{\sqrt{3}}{a}$

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

Answer: D

Question 108

Which of the following motors can be run on AC as well as DC supply

A Reluctance motor

B universal motor

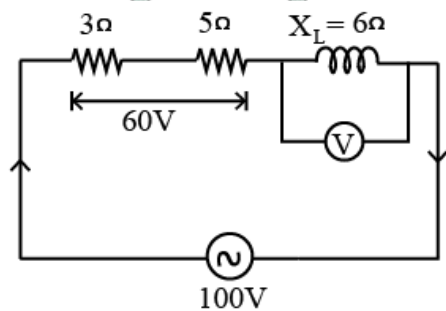
C Repulsion motor

D synchronous motor

Answer: B

Question 109

The power factor of the circuit shown in figure?



A 0.75 lagging

B 0.6 lagging

C 0.3 lagging

D 0.8 lagging

Answer: D

Question 110

The power factor of an AC circuit is given by

A $\frac{R}{Z}$

B $\frac{X_L}{R}$

C $\frac{Z}{R}$

D $\frac{R}{X_L}$

Answer: A

Question 111

A synchronous motor working at leading power factor can be used as

A mechanical synchronizer

B voltage booster

C phase advancer

D noise generator

Answer: C

Question 112

A 150 V DC motor of armature resistance 0.4Ω has back emf of 142 V. The armature current is

A 100 A

B 10 A

C 20 A

D 150 A

Answer: C

Question 113

As compared to full-wave rectifier using two diodes the four diode bridge rectifier has the dominant advantage of

A higher efficiency

B higher current carrying capacity

C lower peak inverse voltage requirement

D lower ripple factor

Answer: C

Question 114

Speed of the megger is kept at

A 160 rpm

B 100 rpm

C 120 rpm

D 140 rpm

Answer: A

Question 115

Two 100 W, 200 V lamps are connected in series across a 200 V supply. The total power consumed by each lamp will be watts

A 200

B 25

C 50

D 100

Answer: B

Question 116

The biot-Savart's law is a general modification of

A Faraday's laws

B Kirchhoffs law

C lenz's law

D Ampere's law

Answer: D

Question 117

The active and reactive power of an inductive circuit are 60 W and 80 VAR respectively. The power factor of the circuit is

A 0.8 lagging

B 0.5 lagging

C 0.6 lagging

D 0.75 lagging

Answer: C

Question 118

For which of the following the excitation control method is satisfactory

A Long lines

B Low voltage lines

C High voltage lines

D Short lines

Answer: D

Question 119

The type of protection that does not respond to faults occuring beyond its zone even though the fault current may through the zone is

- A Back-up protection
- B Bus-bar protection
- C Unit protection
- D Generator protection

Answer: C

Question 120

If F is the load factor, the loss load factor is given by

- A $0.35F + 0.7F^2$
- B $0.25F + 0.75F^2$
- C $0.25F^2 + 0.85F$
- D $0.75F + 0.25F^2$

Answer: B

Question 121

In a $3\frac{1}{2}$ digit voltmeter, the largest number that can be read is

- A 9999
- B 0999
- C 1999
- D 5999

Answer: C

Question 122

In suburban services as compared with urban service

- A the coasting period is smaller but free running period is longer
- B the coasting period is smaller
- C the coasting period is longer
- D the coasting period and free running periods are same

Answer: C

Question 123

Quadrilateral speed time curve is used for

- A goods line service
- B sub urban service
- C urban service

D main line service

Answer: C

Question 124

Which of the following motor will give relatively high starting torque

- A Shaded pole motor
- B Capacitor start motor
- C Capacitor run motor
- D Split phase motor

Answer: B

Question 125

The current in reverse bias in P-N junction diode may be

- A between 2A and 5A
- B few micro or nano amperes
- C few milli amperes
- D between 0.2 A and 2A

Answer: B

Question 126

The repulsion-start induction run motor is used because of

- A high starting torque
- B good power factor
- C high efficiency
- D minimum cost

Answer: A

Question 127

Which of the following is non-linear circuit parameter

- A Transistor
- B Inductance
- C Condenser
- D Wired wound resistor

Answer: A

Question 128

The B-H curve is used to find the mmf of the section of the magnetic circuit. The section is

- A vacuum
- B iron part
- C air gap
- D both iron part and air gap

Answer: B

Question 129

A terminal where three or more branches meet is known as

- A mesh
- B node
- C terminal
- D loop

Answer: B

Question 130

For V-curves for a synchronous motor the graph is drawn between:

- A armature current and power factor
- B field current and armature current
- C terminal voltage and load factor
- D power factor and field current

Answer: B

Question 131

Bundled conductors in EHV transmission system provide

- A increased corona loss
- B increased line reactance
- C reduced line capacitance
- D reduced voltage gradient

Answer: D

Question 132

Welding is injurious to eye because of

1. infrared radiation
2. ultraviolet radiation

Among the above two, choose the correct one from the following choices

- A both are wrong
- B 1 alone is correct

C 2 is correct

D both are correct

Answer: D

Question 133

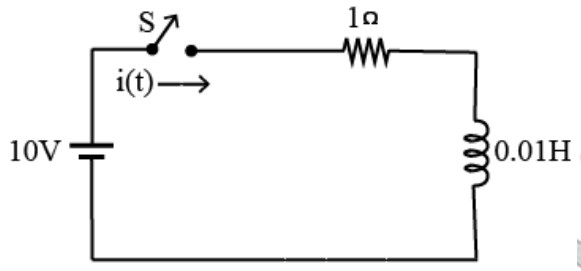
The rated speed of a given D.C. shunt motor is 1050 rpm. To run this machine at 1200 r.p.m. the following speed control scheme will be used

- A Varying frequency
- B Armature circuit resistance control
- C Field resistance control
- D Ward-Leonard control

Answer: C

Question 134

After closing the switch 's' at $t = 0$, the current $i(t)$ at any instant 't' in the network shown in the figure:



- A $10 - 10e^{-100t}$
- B $10 + 10e^{100t}$
- C $10 - 10e^{100t}$
- D $10 + 10e^{-100t}$

Answer: A

Question 135

To increase the range of an AC ammeter you would use:

- A A condenser across the meter
- B Current transformer
- C A potential transformer
- D An inductance across the meter

Answer: D

Question 136

The voltage across 5 H inductor is $v(t) = \begin{cases} 30t^2 & t > 0 \\ 0 & t < 0 \end{cases}$ Find the energy stored at $t = 5s$. Assume zero initial current.

- A 312.5 kJ
- B 0.625 kJ
- C 3.125 kJ
- D 156.25 kJ

Answer: D

Question 137

The energy stored in the magnetic field of a solenoid 30 cm long and 3 cm diameter with 1,000 turns of wire carrying current of 10 A is

- A 1.15 J
- B 0.015 J
- C 0.15 J
- D 0.5 J

Answer: D

Question 138

In a power plant if the maximum demand on the plant is equal to the plant capacity, then

- A load factor will be nearly 60%
- B plant reserve capacity will be zero
- C diversity factor will be unity
- D load factor will be unity

Answer: B

Question 139

The least expensive fractional horse power motor is _____ motor

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

Answer: B

Question 140

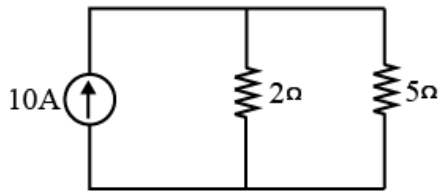
Which of the following condition is NOT mandatory for alternators working in parallel ?

- A The alternators must have the same phase sequence
- B The terminal voltage of each machine must be the same
- C The machines must have equal kVA ratings
- D The alternators must operate at the same frequency

Answer: C

Question 141

Find the current through 5Ω resistor



- A 3.5 A
- B 7.15 A
- C 5 A
- D 2.85 A

Answer: D

Question 142

An isolator is used in series with Air blast circuit Breaker employed at UHV lines because

- A CB life is enhanced with the use of isolator
- B current to be interrupted will be large
- C gap between CB contacts is small so an isolator is used to
- D gap between CB poles is small switch off voltage

Answer: C

Question 143

Diversity factor has direct effect on the

- A Operating cost of unit
- B Fixed cost of the unit generated
- C Variable cos of the unit generated
- D Both variable and fixed cost of unit generated

Answer: B

Question 144

Regulation of an alternative supplying resistive or inductive load is

- A infinity
- B always negative
- C always positive
- D zero

Answer: C

Question 145

The highest transmission ac voltage in India is

- A 1750 kV
- B 132 kV
- C 220 kV
- D 400 kV

Answer: D

Question 146

Point out the **WRONG** statement The magnetising force at the centre of a circular coil varies

- A inversely as its radius
- B directly as the number of its turns
- C directly as the current
- D directly as its radius

Answer: D

Question 147

The rotor slots, in an induction motor are usually not quite parallel to the shaft because it

- A improves the power factor
- B improves the efficiency
- C helps the rotor teeth to remain under the stator teeth
- D helps in reducing the tendency of the rotor teeth to remain under the stator teeth

Answer: D

Question 148

If a $10\mu F$ capacitor is connected to a voltage source with $v(t) = 50 \sin 2000t$ V, then the current through the capacitor is _____ A

- A $10^6 \cos 2000t$
- B $5 \times 10^{-4} \cos 2000t$
- C $\cos 2000t$
- D $500 \cos 2000t$

Answer: C

Question 149

In a series resonance circuit, the impedance at half power frequencies is :

- A $2R$

B $\frac{R}{\sqrt{2}}$

C $\sqrt{2}R$

D $\frac{R}{2}$

Answer: C

Question 150

A $10\ \Omega$ resistive load is to be impedance matched by a transformer to a source with $6250\ \Omega$ of internal resistance. The ratio of primary to secondary turns of transformer should be

A 25

B 10

C 15

D 20

Answer: A

Question 151

The synchronous speed of a three phase induction motor having 20 poles and connected to a 50 Hz source is

A 1200 rpm

B 300 rpm

C 600 rpm

D 1000 rpm

Answer: B

Question 152

A circuit with a resistor, inductor and capacitor in series is resonant of f_o Hz. If all the component values are now doubled the new resonant frequency is

A $\frac{f_o}{4}$

B $2f_o$

C f_o

D $\frac{f_o}{2}$

Answer: D

Question 153

A 2 cm long coil has 10 turns and carries a current of 750 mA. the magnetising force of the coil is

A 375 AT/m

B 225 AT/m

C 675 AT/m

D 450 AT/m

Answer: A

Question 154

A consumer has annual consumption of 700800 units. If his maximum demand is 200 kW. The load factor will be

A 70%

B 20%

C 40%

D 50%

Answer: C

Question 155

The rated voltage of a 3-phase power system is given as

A peak line to line voltage

B rms phase voltage

C peak phase voltage

D rms line to line voltage

Answer: D

Question 156

For a half wave rectifier sine wave the ripple factor is

A 1.00

B 1.65

C 1.45

D 1.21

Answer: D

Question 157

Which one of the following bridges is generally used for measurement of frequency and also capacitance?

A Wein bridge

B Hay's bridge

C Owen's bridge

D Schering bridge

Answer: A

Question 158

Two voltmeter of (0-300 V) range are connected in parallel to a A.C. circuit. One voltmeter is moving iron type reads 200 V. If the other is PMMC instrument, its reading will be

- A 127.4 V
- B slightly less 200 V
- C Zero
- D 222 V

Answer: C

Question 159

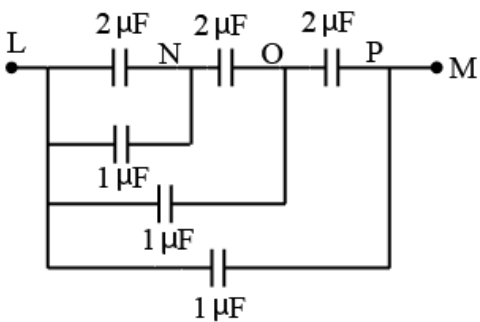
The least number of $1 - \phi$ wattmeters required to measure total power consumed by an unbalanced load fed from a $3\phi, 4$ wire system is

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

Answer: D

Question 160

Total capacitance between the points L and M in figure is



- A $4.05 \mu F$
- B $1.45 \mu F$
- C $1.85 \mu F$
- D $0.05 \mu F$

Answer: D

Question 161

EMF induced in a coil rotating in a uniform magnetic field will be maximum when the

- A Rate of cutting flux by the coil sides is minimum
- B Flux linking with the coil is maximum
- C Rate of change of flux linkage is minimum
- D Rate of change of flux linkage is maximum

Answer: D

Question 162

If resistance is $20\ \Omega$ and inductance is 2H in a RL series circuit, then time constant of this circuit will be

- A 100 s
- B 0.001 s
- C 0.1 s
- D 10 s

Answer: C

Question 163

When the rotor of a three phase induction motor is blocked the slip is

- A 1
- B 0
- C 0.1
- D 0.5

Answer: A

Question 164

The positive, negative and zero sequence impedances of 3-phase synchronous generator are $j\ 0.5\ \text{pu}$, $j\ 0.3\ \text{pu}$ and $j\ 0.2\ \text{pu}$ respectively. When symmetrical fault occurs on the machine terminals. Find the fault current. The generator neutral is grounded through reactance of $j0.1\ \text{pu}$

- A $-j\ 3.33\ \text{pu}$
- B $-j\ 1.67\ \text{pu}$
- C $-j\ 2.0\ \text{pu}$
- D $-j\ 2.5\ \text{pu}$

Answer: B

Question 165

Transient current in RLC circuit is oscillatory when the value of R is

- A more than $2\sqrt{\frac{C}{L}}$
- B less than $2\sqrt{\frac{L}{C}}$
- C less than $2\sqrt{\frac{C}{L}}$
- D more than $2\sqrt{\frac{L}{C}}$

Answer: B

Question 166

For average values of load current, current chopping occurs more frequently in

- A VCB's
- B OCB's
- C ACB's
- D $SF_6CB's$

Answer: A

Question 167

A BJT is said to be operating in the saturation region if

- A Both the junctions are forward biased
- B both the junctions are reverse biased
- C B-E junction is reverse biased and B-C junction is forward biased
- D B-E junction is forward biased an B-C junction is reverse biased

Answer: A

Question 168

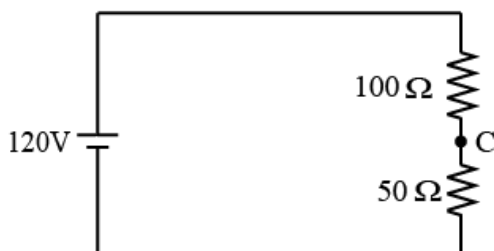
The mutural inductance between two unity coupled coils of 9 H and 4 H will be

- A 36 H
- B 2.2 H
- C 6 H
- D 13 H

Answer: C

Question 169

Determine the voltage at point C shown below with respect to ground



- A 80 V
- B 120 V
- C 40 V
- D 71 V

Answer: C

Question 170

The efficiency normally obtained in a circuit under the conditions of maximum power transfer is

- A 100%
- B 25%
- C 50%
- D 75%

Answer: C

Question 171

A magnet is kept in the medium of air surrounded by an iron ring. The magnetic lines of force from the magnet will be

- A Very small in the ring
- B Crowded in the ring
- C Passing out of the ring
- D Evenly distributed within the ring

Answer: B

Question 172

Which semiconductor device behaves like two SCR's?

- A Triac
- B MOSFET
- C JFET
- D UJT

Answer: A

Question 173

Three resistors, each of ' R ' Ω are connected in star. What is the value of equivalent delta connected resistors

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

Answer: A

Question 174

Super position theorem can be applied only to

- A bilateral networks
- B linear networks
- C non-linear networks

D linear bilateral networks

Answer: D

Question 175

Moving coil (PMMC) and moving iron instruments can be distinguished by observing its

A size of terminals

B pointer

C range

D scale

Answer: D

Question 176

In a fluorescent tube circuit, the function of choke is primarily to

A improve the brightness

B initiate the discharge

C reduce the flicker

D reduce the starting current

Answer: B

Question 177

The magnetic field energy in an inductor changes from maximum value to minimum value in 5 m sec when connected to an A.C. source. The frequency of the source is

A 500 Hz

B 20 Hz

C 50 Hz

D 200 Hz

Answer: C

Question 178

The distribution losses that the utility suffers while transferring power from generating station to the consumer is accounted under

A Maintenance cost

B Fixed charges

C Running charges

D Cost of fuel

Answer: C

Question 179

The magnetic potential difference in a magnetic circuit is given by

- A BIH
- B HJI
- C BI
- D HI

Answer: D

Question 180

Two electric bulbs have tungsten filament of same thickness. If one of them gives 60 W and the other gives 100 W, then

- A 60 W and 100 W lamp filaments have equal length
- B 60 W lamp filament has shorter length
- C 100 W lamp filament has longer length
- D 60 W lamp filament has longer length

Answer: D

Question 181

A capacitor with no initial charge at $t = \infty$ acts

- A Open-Circuit
- B Voltage Source
- C Current Source
- D Short-Circuits

Answer: A

Question 182

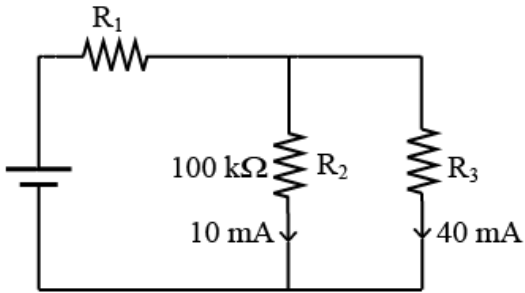
Danger 440 V plates are

- A informal notices
- B danger notices
- C caution notices
- D advisory notices

Answer: C

Question 183

Find R_3 for the circuit shown in figure



- A 25 mega ohm
- B 25 milli ohm
- C 25 ohm
- D 25 kilo ohm

Answer: D

Question 184

The purpose of choke in a fluorescent tube is to

- A increase voltage momentarily
- B decrease current
- C increase current
- D decrease volatage momentarily

Answer: A

Question 185

A 3-phase 4 pole induction motor works on 3-phase 50 Hz supply. If the slip of the motor is 4%. The actual speed will be

- A 720 rpm
- B 1550 rpm
- C 1460 rpm
- D 1440 rpm

Answer: D

Question 186

As per IE rules the permissible variation of voltage at the consumer end is

- A $\pm 6\%$
- B $\pm 10\%$
- C $\pm 12\%$
- D $\pm 2\%$

Answer: A

Question 187

In which single-phase motor, the rotor has no teeth or winding

- A Universal motor
- B Split phase motor
- C Reluctance motor
- D Hysteresis motor

Answer: D

Question 188

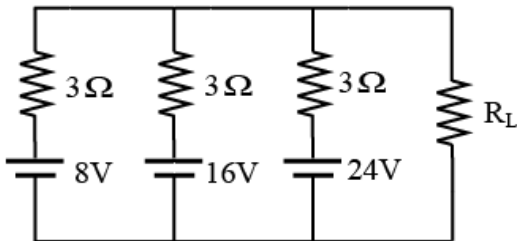
Two DC series motors connected in series draw current I from supply and run at speed N . When the same two motors are connected in parallel taking current I from the supply, the speed of each motor will be

- A $\frac{N}{2}$
- B N
- C $2N$
- D $4N$

Answer: D

Question 189

Using Millman's theorem, find the current through the load resistance R_L of $3\ \Omega$ resistance shown below



- A 12 A
- B 4 A
- C 6 A
- D 8 A

Answer: B

Question 190

An ideal voltage source should be

- A infinite source resistance
- B large value of emf

- C small value of emf
- D zero source resistance

Answer: D

Question 191

Consider a constant uniform magnetic field. A conductor moves across this field at a constant velocity. The emf induced in the conductor is termed as

- A Self-Induced emf
- B Induced emf
- C Statically Induced emf
- D Dynamically Induced emf

Answer: D

Question 192

A generating station supplies the following loads 15000 kW, 12000 kW, 8500 kW, 6000 kW and 450 kW. The station has maximum demand of 22000 kW. Calculate the diversity factor

- A 1.91
- B 0.52
- C 0.25
- D 1.34

Answer: A

Question 193

A magnetic circuit carries a flux ϕ_i in the iron part and a flux ϕ_g in the air gap. Then leakage coefficient is

- A $\phi_i \phi_g$
- B $\frac{\phi_i}{\phi_g}$
- C $\frac{\phi_g}{\phi_i}$
- D $\phi_g \times \phi_i$

Answer: B

Question 194

The maximum demand of a consumer is 2kW and his daily energy consumption is 20 units. Load factor is

- A 21%
- B 10.15%
- C 41.6%
- D 50%

Answer: C

Question 195

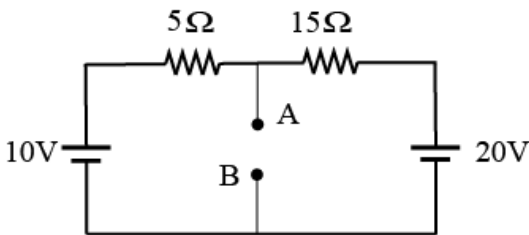
A wheat stone bridge has ratio arm of $1000\ \Omega$ and $100\ \Omega$ resistances, the standard resistance arm consists of 4 decade resistance boxes of $1000, 100, 10, 1\ \Omega$ steps. The maximum and minimum value of unknown resistance that can be determined with this setup are

- A $111100\ \Omega, 10\ \Omega$
- B $111100\ \Omega, 1\ \Omega$
- C $11110\ \Omega, 10\ \Omega$
- D $10000\ \Omega, 10\ \Omega$

Answer: C

Question 196

Thevenin's equivalent voltage and resistance between the terminal A and B for network of given figure is



- A $2.5\ \text{V}, 12.5\ \Omega$
- B $2.5\ \text{V}, 3.75\ \Omega$
- C $12.5\ \text{V}, 3.75\ \Omega$
- D $12.5\ \text{V}, 2.5\ \Omega$

Answer: C

Question 197

Low frequency operation of AC series motor in traction application

- A Improves its commutation but starting current increases
- B Improves its commutation property but pf and η reduces
- C Improves its commutation, pf and efficiency
- D Adversely affects commutation but pf and η improves

Answer: C

Question 198

The speed of a p-pole synchronous machine in rpm is given by

- A $120f P$
- B $\frac{120f}{P}$
- C $\frac{120P}{f}$

D $\sqrt{120fP}$

Answer: B

Question 199

Which of the following motor has high starting torque?

A synchronous motor

B AC series motor

C DC series motor

D induction motor

Answer: C

Question 200

What is the order of minimum displacement that can be measured with capacitive transducers

A 1×10^{-12} m

B 1 cm

C 1 mm

D $1\mu\text{m}$

Answer: D