VIZAG
Steel Management Trainee 2020

Electrical Engineering

Mega Mock Challenge
(May 30- May 31 2020)

Questions & Solutions

1. **Arrange the following words in the sequence as they appear in English dictionary order.**

   1) Master
   2) Marvel
   3) Market
   4) Marker
   5) Marble
   6) Margin

   A. 6, 5, 4, 2, 1, 3
   B. 5, 6, 4, 3, 2, 1
   C. 5, 6, 4, 3, 1, 2
   D. 5, 4, 6, 3, 2, 1

Ans. B

Sol. Correct appearance in English dictionary order is-

   5) Marble

   6) Margin

   4) Marker

   3) Market

   2) Marvel

   1) Master

   Correct order is 5, 6, 4, 3, 2, 1.

   Hence, option B is the correct answer.

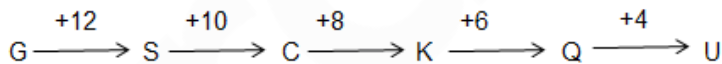2. **A series is given with one term missing. Select the correct alternative from the given ones that will complete the series.**

   G, S, C, ?, Q, U

   A. M
   B. K
   C. F
   D. O

Ans. B

Sol. Given series follows the pattern given below:

   Hence, option B is the correct answer.

3. Ravi wants to go to university. He starts from his home which is in the East towards the west and comes to crossing. The road to the left ends in a theatre straight ahead is the hospital and to the right is University. In which direction the university with respect to the theatre?

   A. South or North
   B. East or West
   C. North
   D. Can't say
   E. South

Ans. C

Sol. Starting from his house in the East, Ravi moves westwards. The road to the left ends in a theatre straight ahead is the hospital and to the right is University

Hence, option C is the correct answer.

4. **In the following question, select the related group of letters from the given alternatives.**

F: M :: K: ?

A. T   B. K

C. R   D. C

Ans. C

As,

$$F \xrightarrow{+7} M$$

Sol. Similarly,

$$K \xrightarrow{+7} R$$

Thus, F: M :: K: R

Hence, option C is the correct answer.

5. **In the following question, select the odd letters from the given alternatives.**

A. AI   B. OU

C. AD   D. IO

Ans. C

Sol. All are in pairs of 'Vowels' except 'AD'.

Hence, option C is the correct answer.

6. **A series is given with one term missing. Select the correct alternative from the given ones that will complete the series.**

DI, KP, RW, YD,?

A. FK   B. EL

C. DJ   D. FP

Ans. A

Sol. In this question, we show that –

So ? = FK

Hence, option A is the correct answer.

7. **A series is given with one term missing. Select the correct alternative from the given ones that will complete the series**

   MP, OR, QT, SV, ?

   A. UX   B. TW

   C. TU   D. XU

Ans. A

Sol.

Alphabet	A	B	C	D	E	F	G	H	I	J	K	L	M
Position value	1	2	3	4	5	6	7	8	9	10	11	12	13
Alphabet	Z	Y	X	W	V	U	T	S	R	Q	P	O	N
Position value	26	25	24	23	22	21	20	19	18	17	16	15	14

   M + 2 ⇒ O, O + 2 ⇒ Q, Q + 2 ⇒ S and S + 2 ⇒ **U**

   P + 2 ⇒ R, R + 2 ⇒ T, T + 2 ⇒ V and V + 2 ⇒ **X**

   Hence, option A is the correct answer.
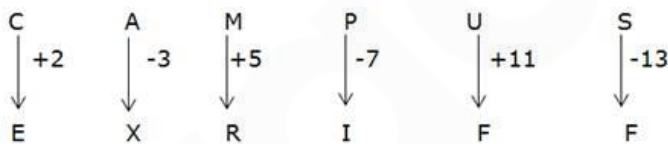
8. In a certain code '**CAMPUS**' is coded as '**EXRIFF**'. In the same code how will '**COMPANY**' be coded as?

   A. LAPELRI   B. ELRILAP
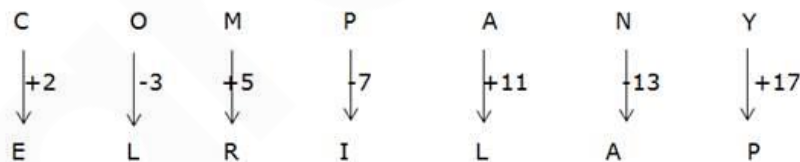
   C. ELAPRIL   D. APELRIL

Ans. B

Sol. The code is as follows:

As,

C	A	M	P	U	S
+2	-3	+5	-7	+11	-13
E	X	R	I	F	F

Similarly,

C	O	M	P	A	N	Y
+2	-3	+5	-7	+11	13	+17
E	L	R	I	L	A	P

   Hence, option B is the correct answer.

9. In certain language, **POT** is written as '**15**', then how will **HIKE** be written in that code language?

   A. 24   B. 21

   C. 36   D. 30

Ans. A

Sol.   Consider A = 1, B = 2, C = 3…..Z = 26

P = 16	O = 15	T = 20	POT
1+6=7	1+5=6	2+0=2	7+6+2=15

Similarly,

H = 8	I = 9	K = 11	E = 5	HIKE
8	9	1+1=2	5	8+9+2+5=24

Therefore HIKE will be coded as 24.

Hence, option A is the correct answer.

10.   Shop P is at a distance of 14 cm in the east direction of Shop Q. Shop R is at a distance of 9 cm in the east direction of Shop Q. What is the distance between Shop R and Shop P and find the direction of Shop R with respect to Shop P?

A. 5 cm, West   B. 5 cm, East

C. 7 cm, North   D. 7 cm, East

Ans.   A

Sol.   We know that:

We can show the given data in the following figure:

From the above figure, R is in the West direction of P.

Distance between Shop R and Shop P = QP - QR = 14 - 9 = 5 cm

Hence, option A is the correct answer.

11. **In the following question, select the odd number from the given alternatives.**

    A. 2195   B. 5193

    C. 3561   D. 9521

Ans. B

Sol. Product of all four digit of these three number 2195,3561,9521 is 90.

    2195=> 2*1*9*5=90

    3561=>3*5*6*1=90

    9521=>9*5*2*1=90

    5193=>5*1*9*3=135

    So odd number is 5193

    Hence, option B is the correct answer.

12. **In the following question, select the odd number from the given alternatives.**

    A. 4 – 64   B. 6 - 214

    C. 3 – 27   D. 5 - 125

Ans. B

Sol. Cube of 4 is 64

    Cube of 3 is 27

    cube of 5 is 125

    Cube of 6 is 216, but in option (B) it is written 214.

    Hence, option B is the correct answer.

13. **In the following question, select the related group of letters from the given alternatives.**

    REKM : UHNP : : PKDL : ?

    A. SNGO   B. SGNO

    C. SNOG   D. MAHG

Ans. A

Sol.

Alphabet	A	B	C	D	E	F	G	H	I	J	K	L	M
Position value	1	2	3	4	5	6	7	8	9	10	11	12	13
Alphabet	Z	Y	X	W	V	U	T	S	R	Q	P	O	N
Position value	26	25	24	23	22	21	20	19	18	17	16	15	14

    R + 3 ⇒ U

    E + 3 ⇒ H

    K + 3 ⇒ N

    M + 3 ⇒ P

    Likewise,

    P + 3 ⇒ S

    K + 3 ⇒ N

    D + 3 ⇒ G

    L + 3 ⇒ O

    Hence, option A is the correct answer.

14. **In the following question, select the related word from the given alternatives.**

Ear: Sound :: Eye : ?

A. Light

B. ray

C. spectacle

D. wind

Ans. A

Sol. Ear can sense sound. Similarly, Eye can sense light.

Hence, option A is the correct answer.

15. **In the following question, statement(s) 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 have to decide which of the given conclusion(s), if any, follow(s) from the given statement(s).**

Statements :

After landing on the Moon, Neil Armstrong said, "One small step for a man, a giant leap for mankind.

Conclusions :

I.   Neil Armstrong presented himself as mankind.

II.   II. The words of Neil Armstrong loud achievement of mankind.

A. Both I and II follows

B. Neither I nor II follows

C. Only Conclusion I follows

D. Only conclusion II follows

Ans. D

Sol. Based on the given statement it can be concluded that the words of Neil Armstrong express the loud achievement of mankind so, conclusion II can be concluded. However, conclusion I is vague.

Hence, option D is the correct answer.

16. **How many rectangles are there in the given figure?**
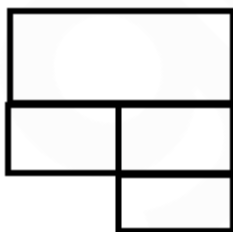
A. 5

B. 6

C. 7

D. 8

Ans. C

Sol.
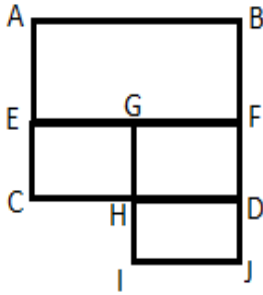
After observation the rectangles are,

ABEF, ABDC, EGHC, EFDC, GFDH, IJDH and IJFG.

So total number of rectangles are 7.

Hence, option C is the correct answer.

17. **Which of the following options shows the logical and meaningful pattern of the given words.**

1) Hour	2) Month
3) Second	4) Day
5) Minute	6) Week
A. 2, 3, 4, 1, 6, 5	B. 3, 5, 1, 4, 6, 2
C. 2, 3, 4, 1, 5, 6	D. 6, 2, 5, 4, 3, 1

Ans. B

Sol. Correct order of Time is-

3. Second

5. Minute

1. Hour

4. Day

6. Week

2. Month

Correct order is- 3, 5, 1, 4, 6, 2

Hence, option B is the correct answer.

18. **Arrange the following words in a logical sequence as they would appear in the English dictionary.**

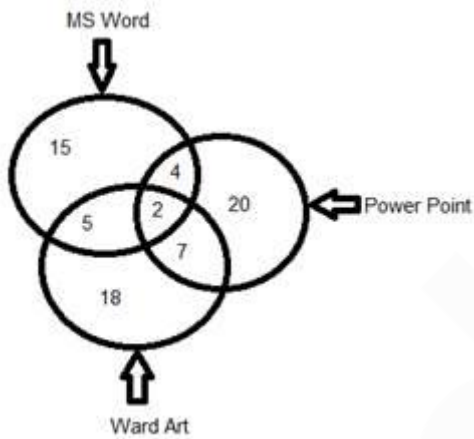|	
1) Jacklight	2)Jacket
3) Jade	4) Joker
5) Jampacked	
A. 2, 1, 3, 5, 4	B. 3, 1, 2, 5, 4
C. 1, 2, 3, 4, 5	D. 2, 3, 1, 4, 5

Ans. A

Sol. Correct appearance in English dictionary order is-

2) Jacket

1) Jacklight

3) Jade

5) Jampacked

4) Joker

Correct order is-2, 1, 3, 5, 4

Hence, option A is the correct answer.

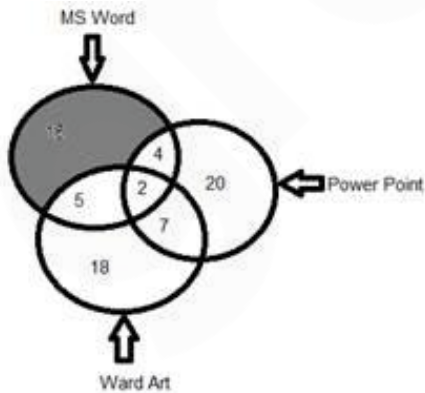19. **In the following Venn Diagram, shows information about the software of the computer.**

The person who has the only ms word?

A. 19   B. 17

C. 15   D. 20

Ans. C

Sol.

In the above of figure shaded part represents the person who has only MS Word = 15

Hence, option C is the correct answer.

20. In a row of 16 boys, when Parvez was shifted by two places towards left, he became 7th from the left end. What was his earlier position from the right end of the row?

A. 7th   B. 8th

C. 9th   D. 10th

Ans. B

Sol. Total number of boys in a row = 16.

As we know, when Parvez was shifted by two places towards left, he became 7th from the left end.

So, his original position from the left end = 9th

Position from the right end = 16 − 9 + 1= 8th

Hence, option B is the correct answer.

21. **In the following question, some statements followed by some conclusions are given. Taking the given statements to be true even if they seem to be at variance from commonly known facts, read all the conclusions and then decide which of the given conclusions logically follows the given statements.**

Statements:

Some eagles are kites.

All kites are birds.

Conclusions:

I. Some birds are eagles.

II. Some eagles are birds.

A. Only conclusion I follows   B. Both I and II follow

C. Only conclusion II follows   D. Neither I nor II follows

Ans. B

Sol. The least possible Venn-diagram is:

Conclusions:

I. Some birds are eagles -True, as it is a definite case.

II. Some eagles are birds - True, as it is a definite case.

So, both conclusion I and II follow.

Hence, option B is the correct answer.

22. **In the following question, select the related word from the given alternatives.**

Dinar : Iraq :: ? : Iran

A. Yen

B. Dirham

C. Dollar

D. Rial

Ans. D

Sol. Yen - the currency of Japan.

Dirham - the currency of the United Arab Emirates.

Dollar - currency of the United states of America, New Zealand, Canada etc.

Dinar is the currency of Iraq and Rial is the currency of Iran. Thus, (Dinar : Iraq :: Rial : Iran).

Hence, option D is the correct answer.

23. **In the following question, select the odd word from the given alternatives.**

A. Marburg

B. Lassa

C. Rabies

D. Chin

Ans. D

Sol. **Marburg** - is a severe illness of humans and non-human primates caused by either of the two Marburgviruses, Marburg virus (MARV) and Ravn virus (RAVV).

Lassa - Lassa fever is an acute viral hemorrhagic illness caused by Lassa virus, a member of the Arenavirus family of viruses. It is transmitted to humans from contacts with food or household items contaminated with rodent excreta.

Rabies - Rabies is a virus that is usually spread by the bite or scratch of an animal.

Chin is a part of human Body.

Hence, option D is the correct answer.

24. **In the following question, select the odd word from the given alternatives.**

A. Nepal

B. Germany

C. China

D. India

Ans. B

Sol. India, Nepal and China are the neighboring countries they all share International boundaries with each other. While, Germany is entirely different from these three as it is a Western European country.

Hence, option B is the correct answer.

25. **Select the correct mirror image of the given figure when the mirror is placed on the right of the figure.**

LBWP

A. ꟼMBꞀ

B. ꞀBMꟼ

C. ꞀBꟼM

D. ꟼWBꞀ

Ans. D

Sol. In a plane mirror, a mirror image is a reflected duplication of an object that appears almost identical, but it is reversed in the direction perpendicular to the mirror surface. As an optical effect, it results from reflection of substances such as a mirror or water.

Mirror

LBWP | ꟼWꓭⱢ
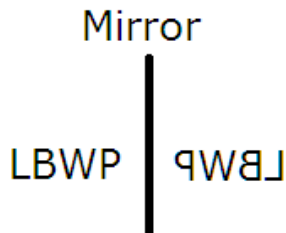
Hence, option D is the correct answer.

26. **In the following question, select the related number from the given alternatives.**

4231: 19 :: 5132: ?

A. 14   B. 15

C. 16   D. 18

Ans. A

Sol. Here, logic is first digit^second digit + third digit^fourth digit

so,

$4^2+3^1=19$

Similarly: $5^1 + 3^2= 14$

Hence, option A is the correct answer.

27. **Select the number that can replace the question mark (?) in the following series.**

600, 120, 30, 10, 5, ?

A. 4   B. 5

C. 3   D. 2

Ans. B

Sol. In the above question every succeeding number is divided by 5, 4, 3, 2 and and 1 respectively.

600×1/5=120

120× 1/4= 30

30× 1/3= 10

10×1/2= 5 and

5×1=5

Hence, 5 is the correct answer.

Hence, option B is the correct answer.

28. **In the following question, select the related number from the given alternatives.**

    9 : 81 :: 12 : ?

    A. 124   B. 104

    C. 134   D. 144

Ans. D

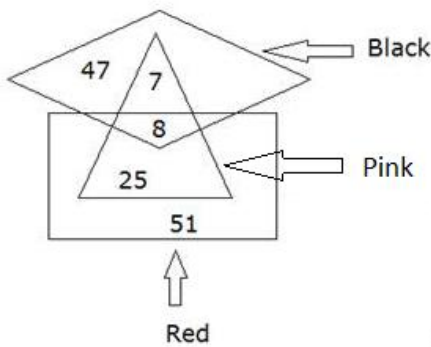Sol. Here numbers are related with its square.

    In 9 : 81

    $81 = 9^2$

    Similarly

    $? = 12^2 = 144$

    Hence, option D is the correct answer.

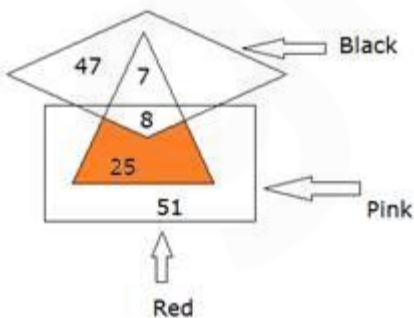29. **The following Venn Diagram shows the information of the person who likes different colours.**

    The person who likes Pink and Red Colors but not Black?

    A. 7   B. 8

    C. 25   D. 47

Ans. C

Sol.

    The person who likes Pink and Red Colors but not Black is the shaded part which is 25.

    Hence, option C is the correct answer.

30. **In the following question, select the missing number from the given alternatives.**

5	8	6
11	9	10
9	13	17
46	?	43

A. 61

B. 16

C. 32

D. 59

Ans. D

Sol. 1st Column:

(5*11)-9=55-9=46

2nd Column:

(8*9)-13=72-13=59

3rd Column:

(6*10)-17=60-17=43

Hence, option D is the correct answer.

31. **Choose the word almost nearest in meaning to the word given below:**

Abnormal

A. Unnatural

B. Aggressive

C. Unique

D. Informal

Ans. A

Sol. The word "abnormal" means unusual, unnatural and irregular. So, the word "unnatural" is similar to the meaning of the given word.

32. Select the most appropriate synonym of the given word.

Venal

A. Corrupt

B. Comprehensible

C. Legible

D. Forgivable

Ans. A

Sol. Venal means corrupt; prepared to do dishonest or immoral thing in return for money. So, option A is the correct answer. The meanings of the other words are:

Comprehensible = able to be understood; intelligible

Legible = clear enough to read

Forgivable = able to be forgiven or tolerated; excusable

33. Select the most appropriate antonym of the given word.

PRUDENT

A. dogmatic   B. systematic

C. careless   D. cantankerous

Ans. C

Sol. Prudent means acting with or showing care and thought for the future.

Dogmatic = one who follows a doctrine relating to morals and faith, a set of beliefs that is passed down and never questioned.

Cantankerous = bad-tempered, argumentative, and uncooperative.

Hence, option C is the correct answer.

34. Find a word that is the antonym of -

TRADITIONAL

A. avant-garde   B. present

C. unusual   D. fresh

Ans. A

Sol. Let's understand the meaning of the given words:

Traditional(परंपरागत) = existing in or as part of a tradition; long-established

Avant-garde(कला के क्षेत्र में अग्रगामी) = new and experimental ideas and methods in art, music, or literature.

Unusual(असामान्य) = being definitely out of the ordinary and unexpected; slightly odd or even a bit weird.

Hence, option A is the correct answer.

35. **In the sentence, identify the segment which contains the grammatical error. If the sentence has no error, then select 'No error'.**

He went on committing crime after crime but in spite of my best efforts, I could not prevent him to do so.A. He went on committing crime

B. after crime but in spite

C. prevent him to do so

D. No error

Ans. C

Sol. The verb "prevent" is followed by the proposition "from" and then it takes the continuous form of a verb, i.e. (verb + ing) form. So, option C must be written as "... I could not prevent him from doing so". Hence, it is the correct answer.

36. In the following question, some part of the sentence may have errors. Find out which part of the sentence has an error and select the appropriate option. If the sentence is free from error, select 'No error'.

The expert mason reported to the contractor that there was no question of the walls falling up.

A. expert mason reported to the contractor B. that there was no question

C. of the walls falling up   D. (D)

Ans. C

Sol. The error is in part (C) of the sentence. The error is of phrasal usage in the sentence. The correct phrase should be 'falling down' as there is no logical meaning of 'walls falling up'.

37. Select the most appropriate option to substitute the bracketed segment in the given sentence. If no substitution is required, select 'No improvement'.

Sita didn't (so far as) blink when she heard she had won the scholarship to Cambridge.

A. so much as   B. as far as

C. as good as   D. No improvement

Ans. A

Sol. The correct phrase to be used in the given sentence is "so much as" which means "even". The sentence means to say, "Sita didn't even blink when she heard she had won the scholarship to Cambridge".

Hence, option A is the correct answer.

38. **Identify the best way to improve the underlined part of the given sentence. If there is no improvement required, select 'no Improvement'.**

Do you mind <u>me</u> leaving this payment until next year?

A. I   B. my

C. mine   D. No improvement

Ans. B

Sol. A possessive pronoun is used with a gerund. The reason is that the gerund form of a verb functions as a noun. In the given sentence the verb "leaving" is a gerund and working as a noun. So, it must be preceded by a possessive pronoun i.e. 'my'.

Examples :- She doesn't approve of my gambling.

Hence, option B is the correct answer.

39. **Choose the most appropriate alternative to complete the sentence:**

There were _____ participants at the conference that we had trouble seating them.

A. much more   B. many more

C. so many   D. too many

Ans. C

Sol. The correct clause is "so many.....that". Since the sentence uses "that" which gives us a hint that "so that" will also be used in the sentence. Thus, option C is the correct answer.

So much and **so many** refer to the amount or the number of something. The object is introduced by **that**. See example:

Ravi had so many problems that he wasn't able to sleep the whole night.

40. **Choose the most appropriate answer and fill in the blanks:**

The principal congratulated him _____ passing the final exam.

A. in   B. at

C. on   D. with

Ans. C

Sol. The correct preposition to be used in the given sentence is "on".

Explanation:

The preposition *on* is used when expressing one's good wishes in the context of a happy event.

Congratulations on your marriage!

Congratulations can be offered as praise for someone's achievement. In that context, the preposition to use is *for.*

Congratulations for completing the project on time.

Hence, option C is the correct answer.

41. **Select the word which means the same as the group of words given.**

Line on map which connects places having same temperature

A. isobar   B. isotherm

C. latitude   D. meridian

Ans. B

Sol. Let's understand the meaning of the given words:-

Isotherm = a line on a map connecting points having the same temperature at a given time or on average over a given period

Isobar = a line on a map connecting points having the same atmospheric pressure at a given time or on average over a given period

Latitude = a measure of a relative position north or south on the Earth's surface, measured in degrees from the equator

Meridian = a great imaginary circle on the surface of the Earth that runs north and south through the North Pole and South Pole

Hence, option B is the correct answer.

42. In the following question, out of the five alternatives, select the word similar in meaning to the given word/phrase.

Person travelling from place to place

A. Journeyman   B. Tramp

C. Mendicant   D. Itinerant

E. None of these

Ans. D

Sol. Itinerant = a person who travels from place to place.

Tramp = a person who travels from place to place on foot in search of work or as a vagrant or beggar.

Journeyman = a trained worker who is employed by someone else.

Mendicant = a beggar.

So, the correct word is "itinerant".

43. **Direction**: In the following question, four words are given out of which one is correctly spelt. Indicate the correctly spelt word.

A. insaucient
B. insouciant
C. insouciant
D. insauciant

Ans. B

Sol. The correctly spelt word is "insouciant" which means showing a casual lack of concern.

44. **Direction**: In the following question, four words are given out of which one is correctly spelt. Indicate the correctly spelt word.

A. embarrassment
B. embarassment
C. embarrassment
D. embarrasment

Ans. C

Sol. The correct spelling is "Embarrassment" which means a feeling of self-consciousness, shame, or awkwardness.

45. Given below are some idioms/phrases followed by four alternative meanings to each. Choose the response A, B, C or D. which is the most appropriate expression.

Call into question

A. Summon as a witness
B. To doubt
C. Prove a theory
D. To challenge

Ans. B

Sol. The idiom "call in question" means to raise a question or doubt about someone or something. Hence, the most suitable answer is option B.

46. **Read the following passage and answer the questions that follow.**

Most of us are not very good listeners. We tend to believe that at meetings we shall be judged by the amount we can contribute in sheer volume of words rather than how much we absorb other people's ideas. When we are listening, or think we are, we find it almost impossible to stop talking to ourselves. We assume that what the other person is saying is dreary and pointless. We don't open our month, of course, because that is just plain bad manners; but we do tend to use our listening moment to work out and rehearse what we hope to say. Again and again at meetings you will hear people hotly denouncing views that have never been put forward or defending to the last breath those that have never been attacked. We live in competitive world and most of us are concerned with putting our own ideas across or beating the other in argument about their ideas.
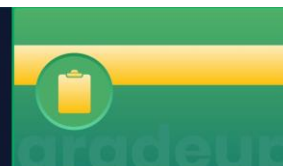
At meetings, we believe we shall be judged by the A. number of questions we put to the speaker

B. noise we make while other are speaking

C. volume of words we contribute

D. amount of ideas we absorb from others

Ans. C

Sol. As per the passage, we tend to believe that at meetings we shall be judged by the amount of words or what we speak, we can contribute in the sheer volume rather than how much we absorb other people's ideas.

Hence, option C is the correct answer.

47. "It is just plain bad manners". This refers to

A. talking to ourselves

B. using offensive language

C. sleeping soundly while somebody is talking

D. interrupting the speaker frequently

Ans. D

Sol. When someone is putting his/her points in a meeting, we are not supposed to open our mouth and interrupt that person as this is considered as bad manners. Therefore, option D is the correct answer.

48. Often at times, you will hear people hotly denouncing

A. views held universally

B. views that have never been put forward

C. absurd arguments put forward by others

D. views that are opposed to their own

Ans. B

Sol. As per the passage, often at times, you will hear people hotly denouncing at meetings with the views that have never been put forward or desperately defending or supporting arguments.

Hence, option B is the correct answer.

49. "Defending to the last breath" means

A. refusing to yield before enemy attack

B. trying to save somebody from an attack of breathlessness

C. sacrificing one's own life for defending positions on the battle front

D. desperately defending or supporting arguments or points of view

Ans. D

Sol. Defending to the last breath means one desperately defends or supports arguments or points of view. Thus, option D is the correct answer.

50. Dreary in the present context means

   A. humorous
   B. lively

   C. provocative
   D. uninteresting

Ans. D

Sol. The word "dreary" means unattractive and having nothing of any interest. Thus, the word "uninteresting" expresses the same meaning as "dreary".

51. Schedule VI of the constitution deals with tribal areas of which states?

   A. Arunachal Pradesh, Manipur, Tripura and Mizoram

   B. Assam, Meghalaya, Manipur and Mizoram

   C. Assam, Meghalaya, Tripura and Sikkim

   D. Assam, Meghalaya, Tripura and Mizoram

Ans. D

Sol. Schedule VIth of constitution deals with tribal areas of **Assam, Meghalaya, Tripura and Mizoram.**

   ● The sixth schedule to the Constitution includes **10 autonomous district councils in 4 states.**

   ● The provisions related to VIth Schedule are mentioned in **Article 244.**

   ● The District Council and Regional Council consist of a maximum of 30 **members**.

   ● The district councils and regional councils have powers to make laws on certain matters with the approval of the Governor.

52. Which chemical released form onion that makes us cry while cutting onions?

   A. Syn-propanethial-S-oxide
   B. Syn-propanethail-Na-Oxide

   C. Syn-propanethial-C-oxide
   D. Trans-propanethia-P-oxide

Ans. A

Sol. • The chemical responsible for tears in eyes while cutting onions is Syn-propanethial-S-oxide.

   • When we cut the onions the synthase enzymes of onion convert the amino acids sulfoxides into Sulfenic Acid. The unstable sulfenic acid rearranges itself into syn-propanethial-S-oxide.

   • Syn-propanethial-S-oxide gets into the air and comes in contact with our eyes. The lachrymal glands become irritated and produce the tears.

53. As per the SIPRI Report released in April, 2020, India stands at what position in military spenders in 2019?

   A. First
   B. Second

   C. Third
   D. Fourth

Ans. C

Sol. As per the SIPRI Report released in April, 2020, **India stands at third position** in military spenders in 2019.

* SIPRI stands for **Stockholm International Peace Research Institute**.

* The report was based on military spending of different countries, in which **US got first position and China got second position.**

* Report suggests that the total military expenditure of world is increased by **3.6%** in 2019 as compared to 2018.

* As per Report, **India** spent 71.1 bn $ in 2019, which is an increment of **6.8%** from previous year.

54. Power of Siberia is a mega gas pipeline project between which countries?

A. Russia and Czech Republic   B. Russia and China

C. Russia, Mongolia and China   D. China, Turkmenistan and Pakistan

Ans. B

Sol. Power of Siberia is a mega gas pipeline project between **Russia and China**.

● It is the first cross border gas pipeline between Russia and China.

● The pipeline stretches more than **3,000km**.

● The pipeline will pass through the deltas of the **Yangtze and Amur** Rivers of China.

55. In March 2020, the "Chief Ministers Akhannaba Sanaroisingi Tengbang (CMAST)" scheme was launched by which state of India?

A. Meghalaya   B. Tripura

C. Mizoram   D. Manipur

Ans. D

Sol. * In March 2020, the **Chief Ministers Akhannaba Sanaroisingi Tengbang (CMAST)** scheme was launched by Manipur state government.

* Under this scheme, the Cash awards will be awarded for Olympians who bag gold, silver, bronze, and the winners will be given **Rs.1 crore, Rs.75 lakh, and Rs.50 lakh** respectively.

* Manipur state government also launched the **Chief Ministergi Artiste Singgi Tengbang (CMAT).**

* This scheme has been designed for renowned artistes.

56. What is the full form of DMA?

A. Direct Multimedia Access   B. Direct Memory Access

C. Direct Memory Action   D. Dual Memory Access

Ans. B

Sol. • **The full form of DMA is Direct Memory Access.**

• Direct Memory Access is computer system feature to allow hardware subsystems to access main system memory. DMA and CPU does other operations while the transfer is in

progress and finally receives an interrupt from the DMA controller when the operation is done.

• DMA can also be used for the memory to memory copying or moving of data within memory.

57. The total no. of ministers in council of ministers shall not exceed _____% of the strength of Legislative assembly?

A. 10   B. 15

C. 20   D. 25

Ans. B

Sol.   * **The total no. of ministers in council of ministers shall not exceed 15 % of the strength of Legislative assembly.**

* Also number of minister including chief minister in any state shall not be less than 12.

* This provision was added through 91st Amendment Act of 2003.

58. Sunlight is captured by which compound in leaves of a green plant?

A. Melanin   B. Chlorophyll

C. Magnesium   D. Myoglobin

Ans. B

Sol.   • **Plant captures sunlight by compound called Chlorophyll.**

• Chlorophyll is a green pigment found in chloroplasts of algae and plants. It is essential for the process of photosynthesis.

• Two types of chlorophyll exist in the photosystem of green plants:

a) Chlorophyll a

b) Chlorophyll b

59. The Governor-General of India was given the title of Viceroy for the first time in:

A. 1857   B. 1858

C. 1856   D. 1859

Ans. B

Sol.   • The Governor-General of India was given the title of Viceroy for the first time in 1858.

• The title "viceroy and governor-general" was first used in the queen's proclamation appointing Viscount Canning in 1858.

• **The Government of India Act 1833** converted the title into "governor-general of India".

• The first governor-general of British India was Lord William Bentinck.

60. Who is known as the Father of Civil Aviation in India?

A. Sir George Cayley   B. J R D Tata

C. Orville Wright   D. None of above

Ans. B

Sol. ● **J R D Tata is known as the Father of Civil Aviation in India.**

● He became the first Indian to pass the pilot's examination with No 1 endorsed on his flying license and his passion for flying was fulfilled with the formation of the Tata Aviation Service in 1932.

61. Constantan is an alloy of copper and _____.

A. Aluminium
B. Iron
C. Tin
D. Nickel

Ans. D

Sol. * Constantan is a copper–nickel alloy also known as Eureka.

* It usually consists of 55% copper and 45% nickel. Its main feature is the low thermal variation of its resistivity, which is constant over a wide range of temperatures.

62. Indian Space Research Organization was founded in which year?

A. 1969
B. 1971
C. 1975
D. 1977

Ans. A

Sol. ● **The Indian Space Research Organisation was founded in 1969.**

● Prior to this, it existed with name The Indian National Committee for Space Research or INCOSPAR. INSCOSPAR was established in 1962 by Jawaharlal Nehru.

● Dr. Vikram Sarabhai is considered as father of Indian Space Research.

63. Which law of physics says that a line between the sun and the planet sweeps equal areas in equal times?

A. Kepler's first law
B. Kepler's second law
C. Archimedes's law
D. Einstein theory

Ans. B

Sol.

Kepler's second law states that a line between the sun and the planet sweeps equal areas in equal times.

● This law infers that the speed of the planet increases as it nears the sun and decreases as it recedes from the sun.

● First law of kepler states that the orbit of every planet is an ellipse with the Sun at one of the two foci.

● Johannes kepler published these laws between 1609 to 1619.

64. A trade mark is an example of _____.

A. Current assets
B. Intangible assets
C. Fixed assets
D. Liquid assets

Ans. B

Sol. • A trademark is a type of **intellectual property right.**

• It consists of a **design, sign, or expression** which helps in identifying products or services & differentiating from other products.

• Trademarks used to identify services are called **service marks.**

• **A trade mark is an example of Intangible assets.**

65. Hypermetropia is related to which of the following body parts?

    A. Lungs   B. Eyes

    C. Brain   D. Ears

Ans. B

Sol. ● Hypermetropia is a common eye condition where nearby objects appear blurred, but your vision is clearer when looking at things further away.

● It is corrected by spectacles or contact lenses with lenses which are convex in shape.

66. Government of India implemented the POSHAN Abhiyaan across the country to address the_____.

    A. To deal with the problem of economic recession.

    B. To protect women during pregnancy.

    C. Problem of malnutrition

    D. All of the above

Ans. C

Sol. * In March 2020, the Government of India implemented the **POSHAN Abhiyaan** across the country to address the **problem of malnutrition**.

* The campaign aims to reduce malnutrition in the country.

* POSHAN (Prime Minister's Overarching Scheme for Holistic Nutrition) Abhiyaan is the Government of India's flagship programme to improve nutritional outcomes for children, pregnant women, and lactating mothers.

* It was launched by **Prime Minister Narendra Modi Modi** on the International Women's Day **on 8 March 2018 in Jhunjhunu, Rajasthan.**

67. Boron, Germanium, Arsenic, Antimony etc. elements are known as_____.

    A. Metals   B. Mixed Metals

    C. Non Metals   D. Metalloids

Ans. D

Sol. Boron, Germanium, Arsenic, Antimony etc. elements are known as **Metalloids**.

• Metalloids are elements classified in periodic table which exhibits **some properties of metals and some properties of non metals.**

• These are arranges in zigzag path in periodic table between metals and non metals.

• **Boron, silicon, germanium, arsenic, antimony, tellurium, and polonium are metalloids.**

• Typical metalloids have a metallic appearance, but they are brittle and only fair conductors of electricity.

68. What is the role of split ring in an electric motor?

    A. It converts mechanical energy to electric energy

    B. It transfers power between rotating and stationary structures

    C. It reduces the unnecessary sound in the motor

    D. It reverses the direction of current in the coil

Ans. D

Sol. **Split ring** reverses the direction of current in the coil.

● The split ring in the electric motor is also known as a **commutator**.

● It consists of a cylindrical shell which contains two insulated splits.

● It is used in **DC machines.**

69. Which of the following is popularly called "Hypo"?

    A. Silver Bromide   B. Aluminium Silicate

    C. Sodium Thiosulphate   D. None of above

Ans. C

Sol. ● **Sodium Thiosulphate is popularly called "Hypo"**.

● It is an inorganic compound with the formula $Na_2S_2O_3xH_2O$.

● It is **used as a medication to treat cyanide poisoning, pityriasis versicolor** and **to decrease side effects from cisplatin**.

70. "Economic theory of Famines" is written by _____.

    A. Vishveshvaraiya   B. Amartya Sen

    C. Hargobind Khurana   D. Arvind Subramanyam

Ans. B

Sol. **The book 'Economic theory of Famines' was written by Amartya Sen in 1981**

• In this book, he argued that famine occurs not only from a lack of food, but also from inequalities built into mechanisms for distributing food.

• Amartya Sen is a Nobel Prize winner in 1998 and a Bharat Ratan awardee of 1999

• He gave the concept of "Welfare Economics" and also credited to develop 'Human Development Index' with Mabub ul Haq.

71. The average of first three numbers is double of the fourth number. If the average of all the four numbers is 12, find the 4th number.

    A. 16   B. 48/7

    C. 20   D. 18/7

Ans. B

Sol. The average of first three numbers is double of the fourth number.

    Let first three numbers be a, b and c

    And fourth no be d

Then,

(a + b + c)/3 = 2 d

→a + b + c = 6d ------eq(1)

the average of all the four numbers is 12

therefore,

a + b + c + d = 4 × 12 = 48---------eq(2)

by using eq(1) in eq(2)

6d + d = 48

→7d = 48

→d = 48/7

72. A man rows to a place 72 km away and back to the starting point in 10 hours. If the time taken to travel 24 km downstream is equal to time taken to travel 16 km upstream. Find the speed of the stream.

A. 3 km/hr

B. 2 km/hr

C. 4 km/hr

D. 5 km/hr

E. None of these

Ans. A

Sol. Time = distance/speed

Let the speed of the boat be 'a' km/hr and speed of the stream be 'b' km/hr.

Relative speed of boat while going upstream = (a − b) km/hr

Relative speed of boat while going downstream = (a + b) km/hr

Given, Aman rows to a place 72km away and back to the starting point in 10 hours.

Time taken = 10 hours

$$\therefore \frac{72}{a-b} + \frac{72}{a+b} = 10$$

$$\Rightarrow \frac{1}{a-b} + \frac{1}{a+b} = \frac{5}{36}\text{-----}1$$

Also the time taken to travel 24 km downstream is equal to time taken to travel 16km upstream.

$$\therefore \frac{24}{a+b} = \frac{16}{a-b}$$

$$\Rightarrow 3a - 3b = 2a + 2b$$

$$\Rightarrow a = 5b$$

Substituting value of a in eq1

$$\Rightarrow \frac{1}{4b} + \frac{1}{6b} = \frac{5}{36}$$

$$\Rightarrow \frac{5}{12b} = \frac{5}{36}$$

⇒ b = 3 km/hr

∴ a = 3 × 5 = 15 km/hr

Speed of stream = 3 km/hr

73. Out of the given options what should come in place of 'a' so that 4560a is divisible by 4?

A. 0   B. 2

C. 6   D. 5

Ans. A

Sol. 4560a

To make any number divisible by 4 its last two digits must be divisible by 4 considering 0a, checking options

00 : divisible by 4

02 : not divisible by 4

06 : not divisible by 4

05 : not divisible by 4

So 'a' is replaced by 0

74. In an examination 73% of the candidates passed in quantitative aptitude test, 70% passed in General awareness and 64% passed in both. If 6300 failed in both subjects the total number of examinees were

A. 60000   B. 50000

C. 30000   D. 25000

Ans. C

Sol. Percentage of students who pas in one or two or both subjects = 73 + 70 − 64 = 79%

∴ Unsuccessful students = 100 − 79 = 21%

If the total number of examinees be x, then

21% of x = 6300

$$\Rightarrow x \times \frac{21}{100} = 6300$$

$$\Rightarrow x = \frac{6300 \times 100}{21} = 30000$$

75. A merchant buys 25 litres of milk daily at the rate of ₹ 12 per litre. He mixes 5 litres of water in it and sells at the rate ₹ 10.40 per litre. His gain/loss is:

A. 8% profit   B. 2% profit

C. 4% profit   D. 6% profit

Ans. C

Sol. A merchant buys 25 litres of milk daily at the rate of ₹ 12 per litre.

Therefore,

Total CP = 25 × 12 = 300

He mixes 5 litres of water in it and sells at the rate ₹ 10.40 per litre.

Quantity of new mixture = 25 + 5 = 30 litres

Total SP = 10.40 × 30 = 312

Gain = SP – Cp = 312 – 300 = 12

Gain % = (gain/CP) × 100

⇒ gain % = (12/300) × 100 = 4%

76. By mistake, instead of dividing Rs. 117 among A, B and C in the ratio $\frac{1}{2} : \frac{1}{3} : \frac{1}{4}$ it was divided

in the ratio of 2:3:4. Who gains the most and by how much?

A. A, Rs. 28   B. B, Rs. 3

C. C, Rs. 20   D. C, Rs. 25

Ans. D

Sol. Original ratio of A, B, and C $= \frac{1}{2} : \frac{1}{3} : \frac{1}{4} = 6 : 4 : 3$

∴ Share of A $= \frac{6}{13} \times 117 = Rs.54$

Share of B $= \frac{4}{13} \times 117 = Rs.36$

Share of C $= \frac{3}{13} \times 117 = Rs.27$

The ratio of A, B, and C by mistake = 2 : 3 : 4

∴ Share of A $= \frac{2}{9} \times 117 = Rs.26$

Share of B $= \frac{3}{9} \times 117 = Rs.39$

Share of C = 13*4 = Rs.52

Therefore, it is clear from the above calculation that C gains maximum i.e. 52 - 27 = Rs. 25

77. A moving train passes a platform 50 m long in 14 s and a lamp-post in 10 s. The speed of the train is

A. 24 km/h   B. 36 km/h

C. 40 km/h   D. 45 km/h

Ans. D

Sol. Suppose length of train = x m

According to the question,

$$\frac{x+50}{14} = \frac{x}{10} \Rightarrow 14x = 10x + 500$$

$$\Rightarrow \qquad 4x = 500$$

$$\Rightarrow \qquad x = \frac{500}{4} = 125m$$

Therefore, speed

$$= \frac{125}{10} \times \frac{18}{5} = 45km/h$$

78. A and B can do a piece of work in 12 days, B and C in 15 days, C and A in 20 days. A alone can do the work in

A. 15 2/3 day   B. 30 days

C. 24 days   D. 40 days

Ans. B

Sol. **Short Trick:**

let Total Work=LCM(12,15,20)=60

	Days	Efficiency
A+B	12	5
B+C	15	4
C+A	20	3

2(A+B+C)=12

A+B+C=6

A=(A+B+C)-(B+C)

A=6-4 =2

Time required by A to complete 60 units of work

=60/2=30 Days

Basic Method:

(A + B)'s 1 day's work = 1/12

(B + C)'s 1 day's work = 1/15

(C + A)'s 1 day's work = 1/20

On adding all three,

2(A + B + C)'s 1 day's work

$$= \frac{1}{12} + \frac{1}{15} + \frac{1}{20} = \frac{5+4+3}{60}$$

$$= \frac{12}{60} = \frac{1}{5}$$

(A + B + C)'s 1 day's work

$$= \frac{1}{10}$$

∴ A's 1 day's work $= \frac{1}{10} - \frac{1}{15}$

$$= \frac{3-2}{30} = \frac{1}{30}$$

∴ Time taken by A = 30 days

79. If the average of 6 consecutive even numbers is 25, the difference between the largest and the smallest number is

A. 8   B. 10

C. 12   D. 14

Ans. B

Sol. If the average of 6 consecutive even numbers is 25.

Then numbers will be 20, 22, 24, 26, 28, 30

difference between the largest and the smallest number = 30 – 20 = 10

80. Four different electronic devices make a beep after every 30 minutes, 1 hour, 1 hour 30 minutes and 1 hour 45 minutes respectively. All the device beeped together a.m. 12 noon. They will again beep together at:

A. 12 midnight   B. 3 a.m.

C. 6 a.m.   D. 9 a.m.

Ans. D

Sol. Internal after which the devices will beep together

= (L.C.M. of 30, 60, 90, 105) min = 1260 min =21 hrs

So, the devices will again beep together 21 hrs after 12 noon *i.e,* at 9 a.m.

81. P, Q and R invested in the ratio 4 : 5 : 6 in a business. If 10% of the total profit goes to charity and Q' share is Rs 4320, find the total profit.

A. 14000   B. 15000

C. 14400   D. 16400

Ans. C

Sol. Let the total profit be P

remaining profit after 10% donation = 0.9P

Q'share in remaining profit = 5/(4+5+6) of remaining profit

= 1/3 of remaining profit

= 0.9P/3 = 0.3P= 4320

P = 4320/0.3 = 14400

82. A and B are two candidates in an election. 10% of the voters in the voter list have not voted and out of the total votes caste, 100 were rejected. If A won from B by 300 votes and gets 46% of the votes listed in the voter list, then find the total number of valid votes cast.

A. 8900
B. 9800
C. 8200
D. 2800
E. 10000

Ans. A

Sol. 10% not vote.

100 voters were rejected.

A got 46% and won by 300 vote

46%-(90%-46%-100)=300

46%-44%+100=300

2%+100=300

2%=200

WE GET,

1%=100

valid voters=90*100-100

= 8900.

83. A boat running in downstream covers distance of 40 km in 5hr. While it covers same distance upstream it takes 8hrs. The speed of the stream is what percent of boat.

A. 20%
B. 23%
C. $23\frac{1}{13}$%
D. None

Ans. C

Sol. 40 = (x+y) × 5 = 8 = x+ y

40 =(x-y) ×8 = 5= x-y

x = 13/2 = 6.5 km./hr

y = 1.5

percent =300/13 = $23\frac{1}{13}$%

84. A number when divided by 49 leaves 32 as remainder. This number when divided by 7 will have the remainder as:

A. 4
B. 3
C. 2
D. 5

Ans. A

Sol. Let number be x and divisor be k.

According to the given condition,

$x = 49k + 32$
$= 7 \times 7k + 7 \times 4 \times 4$
$= 7(7k + 4) + 4$

Hence, remainder is 4.

Alternate Method:

Let the number be 81 as it leaves 32 as remainder when divided by 49.

So, 81 leaves 4 as remainder when divided by 7.

85. 90 coins makes Rs. 8.10 which contain the coin of 10 Ps and 5Ps. Find number of coins of 5 ps.

A. 18
B. 36
C. 9
D. 24

Ans. A

Sol.

10   5
  \ × /
   9
 4/   \1
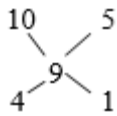
Aveg. Value $\rightarrow \dfrac{8.10}{90} = \dfrac{810PS}{90}$ = 9 PS

1/5 × 90 = 18

86. A man spends 15% of his income. If his expenditure is Rs. 75, his income (in rupees) is:

A. 400
B. 300
C. 750
D. 500

Ans. D

Sol. A man spends 15% of his income. If his expenditure is Rs. 75

15% of income = 75

⇒ total income = (75/15) × 100 = 500

87. The ratio of the numbers of boys and girls of a school with 504 students is 13:11. What will be the new ratio if 12 more girls are admitted?

A. 91:81
B. 81:91
C. 9:10
D. 10:9

Ans. A

Sol. Total numbers of girls in the school:

$= 504 \times \dfrac{11}{13+11} = 504 \times \dfrac{11}{24} = 231$

Total numbers of boys in the school:

$= 504 \times \dfrac{13}{13+11} = 504 \times \dfrac{13}{24} = 273$

Now, total numbers of girls when 12 more girls are admitted = 231 + 12 = 243

∴ New ratio of boys and girls = 273 : 243 = 91 : 81

88. The compound interest on Rs. 30,000 at 7% per annum for n years is Rs. 4347. The value of n is

    A. 3   B. 2
    C. 4   D. 5

Ans. B

Sol. Amount

$= Rs.(30000 + 4347)$

$= Rs.34347$

$A = P\left(1 + \dfrac{R}{100}\right)^T$

$\Rightarrow 34347 = 30000\left(1 + \dfrac{7}{100}\right)^n$

$\Rightarrow \dfrac{34347}{30000} = \left(\dfrac{107}{100}\right)^n$

$\Rightarrow \dfrac{11449}{10000} = \left(\dfrac{107}{100}\right)^n$

$\Rightarrow \left(\dfrac{107}{100}\right)^2 = \left(\dfrac{107}{100}\right)^n$

$\Rightarrow n = 2\,years$

89. Two trains 140 m and 160 m long run at the speeds of 60 km/h and 40 km/h respectively in opposite directions on parallel tracks. The time (in seconds) which they take to cross each other, is

    A. 10   B. 10.8
    C. 9   D. 9.6

Ans. B

Sol. Total length of trains = 140+160= 300m

Relative speed= 60+40= 100 km/h

$= 100 \times \dfrac{5}{18}\,m/s = \dfrac{250}{9}\,m/s$

$\therefore$ Time taken to cross each other$= \dfrac{300}{\dfrac{250}{9}}$

$= \dfrac{300 \times 9}{250} = 10.8s$

90. Yogesh took a loan of 12000 for 5 yr on simple interest. After 5 yr he paid 3600 as interest. What is the rate of interest per cent per annum?

    A. 6   B. 8
    C. 4   D. can't be determined

Ans. A

Sol. Principle amount = ₹12000

Time = 5 yr

Interest = ₹ 3600

Rate = $\dfrac{3600 \times 100}{12000 \times 5} = \dfrac{360000}{60000} = 6\%$

91. Neelam, Supriti, and Pallavi start running around a circular stadium and complete one round in 14s, 12s and 16s respectively. In how much time, they will meet again at the starting points?

A. 5 min 30 sec   B. 6 min 36 sec

C. 5 min 45 sec   D. 5 min 36 sec

E. none of these

Ans. D

Sol. Required time = LCM of 14,12,16

= 336 s = 5 min 36 sec

92. 9 litre mixture contains spirit and water. In this mixture water is 15%. Now if 9 litre mixture is again added and that have 8% water. Find the total percent of spirit = ?

A. $12\dfrac{1}{2}\%$ B. $11\dfrac{1}{2}\%$

C. $98\dfrac{1}{2}\%$ D. $88\dfrac{1}{2}\%$

Ans. D

Sol. water is → $\dfrac{9 \times 15}{100} = \dfrac{1.35}{100} = 1.35$

water is → $\dfrac{9 \times 8}{100} = 0.72$

water = $\dfrac{1.35 + 0.72}{9 + 9} = 11.5\%$

Spirit = 88.5%

93. An inlet P can fill a tank in 30 minutes. 5 other inlets, each of 25% efficiency of P can fill tank in what time?

A. 24 minutes   B. 10 minutes

C. 30 minutes   D. 45 minutes

Ans. A

Sol. Since other inlets are of 25% efficiency of P so they take 30X4=120minutes each to fill the tank.

So, in 1 min other inlet will fill=1/120.

But since there are 5 inlets, they will fill= (1/120) X5=1/24

So, together they can fill the inlet completely in 24 minutes.

94. The ratio of the present ages of P and Q is 8 : 5. After 6 years their ages will be in the ratio of 3 : 2. Find the ratio of the sum and difference of the present ages of P and Q.

A. 9:39

B. 39:9

C. 39:19

D. 29:9

Ans. B

Sol. accordingly

(8x+6)/(5x+6)= 3/2

15x+18 = 16x+12

x = 6

hence ages will be 48 and 30

Ration of sum and difference= 48+30:48-30= 78:18= 39:9

95. The compound interest on Rs. 24000 at 10% per annum for 3/2 years, interest being compounded semi annually is

A. Rs.3783

B. Rs.3777

C. Rs.3780

D. Rs.3781

Ans. A

Sol. Formula for CI when it's not compounded annually:

$$A = P \left(1 + \frac{r}{100 \times n} \right)^{nt}$$

Where A is the amount at the end of time t, P is the principal, t is time, r is rate and n is number of times per year interest is compounded.

According to the question:

The compound interest on Rs. 24000 at 10% per annum for 11/2 years, interest being compounded semi annually

$$A = P \left(1 + \frac{r}{100 \times n} \right)^{nt}$$

$$\Rightarrow A = 24000 \left(1 + \frac{10}{100 \times 2} \right)^{2 \times 3/2}$$

$$\Rightarrow A = 24000 \times \frac{21}{20} \times \frac{21}{20} \times \frac{21}{20} = 27{,}783$$

Compound interest = Amount – Principal = 27,783 – 24000 = 3783

96. **Directions:** Study the information carefully to answer the following questions

A kindergarten consists of 7500 students. The ratio of boys to girls is 3 : 2 respectively. All the students are involved in five different games viz., Hockey, Cricket, Tennis, Football and Volleyball. 28 per cent of girls are in Hockey. 16 per cent of the boys are in Tennis. One-fifth of the boys are in Volleyball. The ratio of girls to boys in Tennis is 2 : 3 respectively. 25 per cent of the total numbers of students are in Cricket. Girls in Volleyball are 60 per cent of the boys are in the same game. 22 per cent of the girls are in Football.

The remaining girls are in Cricket. 18 per cent of the boys are in Hockey and the remaining in Football.

Number of boys in Hockey forms what per cent of the number of girls in the same game? (rounded off to two digits after decimal)

A. 96.43   B. 113.70

C. 90.36   D. 117.43

E. 128.91

Ans. A

Sol.

Games	Girls	Boys
Hockey	840	810
Cricket	480	1395
Tennis	480	720
Football	660	675
Volleyball	540	900

Required percentage $= \dfrac{810}{840} \times 100 = 96.43\%$

97. What is the number of girls in Cricket and Hockey?

A. 1380   B. 1220

C. 1320   D. 1200

E. None of these

Ans. C

Sol. Required number of girls in Cricket and Hockey = (480 + 840) = 1320

98. Number of boys in Cricket forms what per cent of total number of the students in the school?

A. 16.8%   B. 9.75%

C. 12.25%   D. 16%

E. 18.6%

Ans. E

Sol. Required percentage $= \dfrac{1395}{7500} \times 100 = 18.6\%$

99. What is the total number of boys in Tennis and Volleyball together?

A. 1380   B. 1620

C. 1400   D. 1520

E. None of these

Ans. B

Sol. Total number of boys in Tennis and Volleyball = (720+900) = 1620

100. What is the number of boys in Football?

    A. 800   B. 570

    C. 640   D. 675

    E. None of these

Ans. D

Sol. Total number of boys in Football = 675

101. The master-slave flip-flop consists of

    A. Two FFs in series   B. 2 FFs in parallel

    C. D-latch   D. None of above

Ans. A

Sol. Two FFs are connected in series in master-slave FF.

102. MOSFET can be used as a

    A. Current controlled capacitor   B. Voltage controlled capacitor

    C. Current controlled inductor   D. Voltage controlled inductor

Ans. B

Sol. Voltage controlled capacitor are MOSFET type.

103. In a 3-phase semi converter, for firing angle less than or equal to 60°, free-wheeling diode conducts for

    A. 30°   B. 60°

    C. 90°   D. 0°

Ans. D

Sol. For firing angle less than 60°, freewheeling diode does not come into operation.

104. Which of the following will be preferred for high gain?

    A. Darlington Amplifier   B. Push-pull Amplifier

    C. Cascode Amplifier   D. Cascade Amplifier

Ans. D

Sol. Cascade Amplifier has high gain among all.

105. Which of the following dc motor would be suitable for drives requiring high shorting torque but only constant speed such as crushers?

    A. Shunt   B. Series

    C. Compound   D. Permanent magnet

Ans. C

Sol. Compound DC motor are most suitable for it.

106. In an oscillating LC circuit with L = 50 mH and C = 4 μF, the current is initially a maximum. How long will it take before the capacitor is fully discharged for the first time

    A. 7×10^{-4} s   B. 14×10^{-4} s

    C. 28×10^{-4} s   D. None

Ans. A

Sol. Time period $T = 2\pi\sqrt{LC} = 2\pi\sqrt{(50 \times 10^{-3}) \times (4 \times 10^{-6})} = 28 \times 10^{-4}$ sec

Time taken by capacitor to charge

t = T/4 = 7 × 10⁻⁴ sec

107. The stability factor S for CE amplifier using a fixed bias is

A. $\beta(1+\beta)$

B. $\dfrac{\beta}{1+\beta}$

C. $\dfrac{\beta}{1-\beta}$

D. $\dfrac{\beta}{\beta} - \dfrac{1}{\beta^2}$

Ans. A

Sol. S = $\beta(1+\beta)$ → stability factor for CE amplifier.

108. In Op-amp for minimum percentage error:

A. Open loop gain should be high, but feedback factor should be low

B. Open loop gain should be low but feedback factor should be high

C. Open gain as well as feedback factor should be high

D. Open loop gain as well as feedback factor should be low

Ans. C

Sol. The correct option is C

For minimum error, open gain as well as feedback factor should be high.

109. A relay used on a long transmission line are:

A. mho's relay

B. reactance relay

C. impedance relay

D. Neither of the above

Ans. A

Sol. Mho's relay is preferred for long transmission line.

110. Thermocouples are generally used for accurate temperature measurement upto

A. 100°C

B. 150°C

C. 500°C

D. 160°C

Ans. D

Sol. It works generally for measuring temperature around 160°C.

111. A voltmeter with resistance 500Ω is used to measure the emf of a cell of internal resistance 4Ω. The percentage error in the reading of the voltmeter will be

A. 0.2%

B. 0.8%

C. 1.4%

D. 2.2%

Ans. B

Sol. V = E − ir

percentage error = $\frac{\Delta E}{E} \times 100 = \frac{ir}{E} \times 100$

error = $\frac{\left(\frac{E}{R+r}\right)r}{E} \times 100 = \frac{r}{R+r} \times 100$

error % = $\left(\frac{4}{500+4}\right) \times 100$ = 0.8%

112. The yoke of generator is made of cast iron because

    A. It gives mechanical protection to the machine

    B. It completes the magnetic path

    C. It is cheap

    D. All of the above

Ans. D

Sol. All the given statement satisfies it.

113. A bulb is firstly connected to DC supply and then with AC supply of same voltage it will shine brightly with

    A. DC   B. AC

    C. Equal with both AC as well DC   D. Neither of them

Ans. C

Sol. The brightness remains same in both AC as well as DC supply.

114. The binary equivalent of $(0.625)_{10}$ is

    A. 0.101   B. 0.011

    C. 0.111   D. 0.001

Ans. A

Sol. The binary equivalent 0.625 is 0.101.

115. Potentiometer measures potential more accurately because

    A. It measure potential in open circuit.

    B. It uses sensitive galvanometer for null deflection.

    C. It used high resistance potentiometer wire.

    D. It measures potential in closed circuit.

Ans. A

Sol. Potentiometer measures potential in an open circuit.

116. The diagram of a logic circuit is shown below
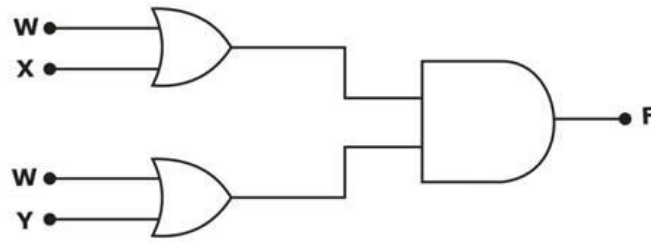
The output f of the given circuit is

A. W. (X + Y)　　　　　　　　　　B. W. (X . Y)

C. W + (X . Y)　　　　　　　　　　D. W + (X + Y)

Ans. C

Sol. F = (W + X) . (W + Y) = W + (X . Y)

117. The principle of operation of a 3-phase induction motor is most similar to that of a:

A. Synchronous motor

B. Repulsion-start induction motor

C. Transformer with a shorted secondary

D. Capacitor-start, induction-run motor

Ans. C

Sol. Transformer with shorted secondary acts similarly to a 3-phase induction motor with shorting.

118. The charging current in cables

A. Lags the voltage by 90°　　　　　B. Lags the voltage by 180°

C. Leads the voltage by 90°　　　　　D. Leads the voltage by 180°

Ans. C

Sol. Charging current is basically current through capacitance which always leads voltage by 90°.

119. Pin insulators are normally used up to voltage of about

A. 100 kV　　　　　　　　　　　　B. 66 kV

C. 33 kV　　　　　　　　　　　　D. 25 kV

Ans. D

Sol. 25 kV are normal voltage up to which pin insulator used.

120. Which distribution system is more reliable?

A. ring main system　　　　　　　B. radial system

C. three system　　　　　　　　　D. All are equally reliable

Ans. A

Sol. Ring main distribution system is most reliable.

121. The early effect in a bipolar junction transistor is caused by

    A. Fast turn ON
    B. Fast Turn OFF
    C. Large collector-base reverse bias
    D. Large emitter-base forward bias

Ans. C

Sol. Large collector-base reverse bias causes Early effect.

122. Compared to a single phase half bridge inverter, the output power of a single-phase full-bridge inverter is higher by a factor of

    A. 12
    B. 8
    C. 4
    D. 2

Ans. C

Sol. Output power of 1-phase full inverter is four times the output of 1-phase half bridge inverter.

123. The figure given below represents a
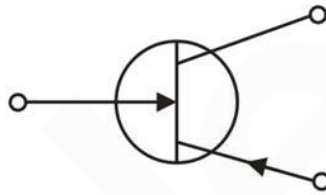
    A. Zener diode
    B. PNP transistor
    C. NPN transistor
    D. Junction FET

Ans. B

Sol. The given figure represents a PNP transistor.

124. Which one of the following is used as the main switching element in a switched mode power supply operating in 20 kHz to 100 kHz range?

    A. Thyristor
    B. MOSFET
    C. TRIAC
    D. UJT

Ans. B

Sol. MOSFET has fasted switching so used in SMPS (high frequency).

125. The effect of increasing length of air gap in an induction motor will be to increase the

    A. Power factor
    B. Speed
    C. Magnetizing current
    D. Air gap flux

Ans. C

Sol. Due to increase in air gap the magnetizing current also increases in induction motor.

126. A forward voltage can be applied to an SCR after its

    A. Anode current reduces to zero
    B. Gate recovery time
    C. Reverse recovery time
    D. Anode voltage reduces to zero

Ans. B

Sol. Gate recovery time applied before forward voltage.

127. Which of the following short circuit is the most dangerous?

   A. line to line short circuit
   B. dead short circuit
   C. line to ground short circuit
   D. line to line & ground short circuit

Ans. B

Sol. Dead short circuit is the most dangerous among all.

128. In a 3-phase half wave and 3-phase bridge rectifier PIV will be (source voltage= V_m) (controlled)

   A. $\sqrt{3}\,V_m, V_m$
   B. $3\,V_m, \sqrt{3}\,V_m$
   C. $1.732\,V_m, 1.5\,V_m$
   D. None of these

Ans. A

Sol. For half wave PIV = $\sqrt{3}\,V_m$, full wave PIV = V_m

129. The turn-off time is longer than the turn ON time in SCR.

   A. The anode and cathode functions get reverse biased while gave junctions is still forward biased.
   B. The forward break-over voltage is high
   C. The gate pulse has been removed
   D. None of these

Ans. A

Sol. The correct option is A.

130. Zero power factor method of an alternator is used to find its.

   A. Efficiency
   B. Voltage Regulation
   C. Armature resistance
   D. Synchronous reactance

Ans. B

Sol. Voltage regulation is calculated by using ZPF method.

131. In a transistor, which of following statement holds true?

   A. The emitter has the least concentration of impurity
   B. The collector has the least concentration of impurity
   C. The base has the least concentration of impurity
   D. All the three regions have equal concentrations of impurity.

Ans. C

Sol. In transistor base is least doped, so that most of electrons emitted from emitter reach to collector & lesser number of electrons are destroyed due to recombination with holes in base.

132. The impulse response of an initially relaxed linear system is $e^{-2t}u(t)$. To produce a response of $te^{-2t}u(t)$. The input must be equal to

A. $2e^{-t}u(t)$

B. $\frac{1}{2}e^{-2t}u(t)$

C. $e^{-2t}u(t)$

D. $e^{-t}u(t)$

Ans. C

Sol. For impulse input $C(s) = G(s) = \dfrac{1}{s+2}$

$C(s) = R(s)G(s)$, $\dfrac{1}{(s+2)^2} = R(s) \times \dfrac{1}{s+2} \Rightarrow R(s) = \dfrac{1}{s+2}$

So, $R(t) = e^{-2t}u(t)$

133. Consider a system with transfer function $t_1(s) = \dfrac{s+6}{Rs^2+s+6}$. Its damping ratio will be 0.5 when the value of k is

A. 2/6

B. 3

C. 1/6

D. 6

Ans. C

Sol.

$\xi = 0.5$, $\dfrac{1}{k} = 2\xi w_n$, $w_n^2 = \dfrac{6}{k}$

$\dfrac{1}{k} = 2 \times 0.5 \times \sqrt{\dfrac{6}{k}}$, $\dfrac{\sqrt{k}}{k} = \sqrt{6} \Rightarrow \dfrac{1}{\sqrt{6}} = \sqrt{k}$, $\boxed{k = \dfrac{1}{6}}$

134. What are the advantages of dc transmission system over are transmission system?

A. DC system is economical

B. There is no skin effect in dc system

C. corona limits are highest for dc circuit as compared to ac circuits

D. All of the above

Ans. D

Sol. All the given statements are correct.

135. The main purpose of using core transformer is to

A. Decrease iron loss

B. Prevent eddy current loss

C. Eliminate magnetic hysteresis

D. Decrease reluctance of the common magnetic circuit.

Ans. D

Sol. Core transformer decreases reluctance of the common magnetic circuit.

136. The equation of current in an AC circuit is I = 4 sin (100 πt + π/3). Root mean square value of the current is

A. 2 A

B. 4 A

C. 2.83 A

D. 5.66 A

Ans. C

Sol. The rms current = $\dfrac{4}{\sqrt{2}} = 2\sqrt{2}$ = 2.83 A

137. To convert mechanical energy into electrical energy, one can use which of the following.

A. DC dynamo

B. AC dynamo

C. Motor

D. Both A & B

Ans. D

Sol. Both AC & DC dynamo can be used for converting mechanical energy into electrical energy.

138. The value of alternating emf E in the given circuit will be
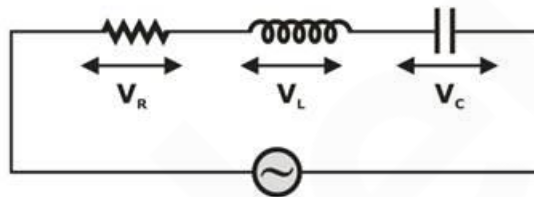
V_R = 80 V, V_L = 40 V and V_C = 100 V

A. 100 V

B. 20 V

C. 220 V

D. 140 V

Ans. A

Sol. $V = \sqrt{V_R^2 + (V_L - V_C)^2} = \sqrt{80^2 + (40 - 100)^2}$ = 100 V

139. Following effects are associated with transmission lines.

I. corona effect

II. proximity effect

III. skin effect

The effective resistance of a conductor is increased by

A. I only

B. II & III only

C. I & III only

D. All three

Ans. B

Sol. Resistance increased in case of skin and proximity effects only.

140. The armature of DC motor has 20Ω resistance. It draws current of 2.5A when run by 220V DC supply. The value of back emf induced in it will be

A. 150V

B. 170V

C. 180V

D. 190V

Ans. B

Sol. E_b = V − IR = 220 − (2.5 × 20) = 170 V

141. In terms of constants A, B, C and D for short transmission lines, which of the following is valid?

A. A = B = 1

B. B = D = 0

C. A = C = 1

D. C = 0

Ans. D

Sol. C = 0, when line is short transmission one because, the effect of capacitance is neglected in it.

142. An oscilloscope indicates _____ value of voltage.

A. Average

B. rms

C. peak to peak

D. DC

Ans. C

Sol. It indicates peak to peak value of voltage.

143. The diagram shows a capacitor C and a resistor R connected in series to an AC source V_1 and V_2 are voltmeters and A is an ammeter.

Consider now following conditions:

I. Reading in A and V_{32} are always in phase

II. reading in V_1 ahead in phase with reading in V_2.

III. Reading in A and V_1 are always in phase
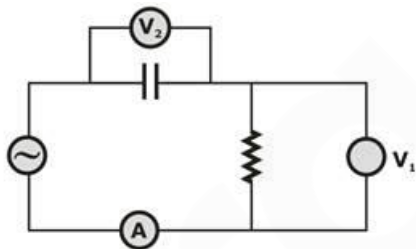
Which of these statements are/is correct?

A. I only

B. II only

C. I & II only

D. II & III only

Ans. D

Sol. Current in resistor and potential difference across it are in same phase. Also, potential difference across resistor is π/2 ahead of potential difference across capacitor.

144. The sensitivity of a Wheatstone bridge depends upon

A. The current sensitivity of the galvanometer

B. Galvanometer resistance

C. Bridge supply voltage

D. All of the above

Ans. D

Sol. All the given options are correct.

145. The symbol shown in figure represents:
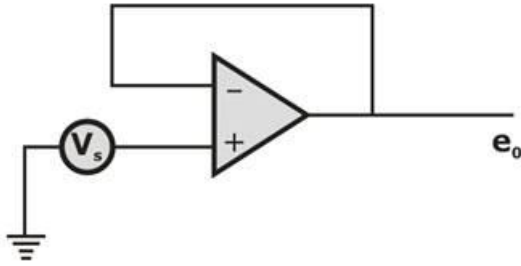
A. DC voltage follower
B. AC voltage follower
C. Adder
D. Clamper

Ans. B

Sol. The given circuit symbols represent a AC voltage follower.

146. In common emitter amplifier the $\dfrac{I_e}{I_e}$ is 0.98. The current gain will be

A. 4.9
B. 7.8
C. 49
D. 78

Ans. C

Sol. $\alpha = \dfrac{I_e}{I_e} = 0.98$ $\beta = \dfrac{i_c}{I_B}$, $\beta = \dfrac{\alpha}{1 - \alpha} = \dfrac{0.98}{1 - 0.98} = 49$

$\beta = 49$

147. The gain margin of a unity negative feedback system having forward transfer function $\dfrac{k}{s(sT + 1)}$ is,

A. Infinity
B. kT
C. 1
D. Zero

Ans. A

Sol. $G(jw)H(jw) = \dfrac{k}{jw(jwT + 1)}$ $\left|G(jw)H(jw)\right| = \dfrac{k}{w\sqrt{1 - (wT)^2}}$

$> G(jw)H(jw) = \dfrac{\left[0^\circ\right]}{\left[90^\circ\right]\left[\tan^{-1} wT\right]}$

$= -90^\circ - \tan^{-1}wt$

$> G(jw)\, H(jw) = -180^\circ$

At $w = w_{pc} = \infty$ rad/sec

$\left|G(jw)H(jw)\right| = x = \dfrac{k}{\infty} = 0$

$G.M = \dfrac{1}{x} = \dfrac{1}{0} = \infty \rightarrow$ infinity.

148. Squirrel-cage bars which placed in the rotor pole faces of alternator to reduce hunting

    A. Above synchronous speed   B. Both A & B

    C. Below synchronous speed   D. None of these

Ans. C

Sol. Bars brigs back the speed to synchronous for reducing hunting.

149. An alternating current is given by the equation $i = i_1 \cos \omega t + i_2 \sin \omega t$. The rms current is given is given by

    A. $\dfrac{1}{\sqrt{2}} (i_1 + i_2)$

    B. $\dfrac{1}{\sqrt{2}} (i_1 + i_2)^2$

    C. $\dfrac{1}{\sqrt{2}} (i_1^2 + i_2^2)^{1/2}$

    D. $\dfrac{1}{2} (i_1^2 + i_2^2)^{1/2}$

Ans. C

Sol. $i^2 = (i_1 \cos \omega t + i_2 \sin \omega t)^2 = i_1^2 \cos^2 \omega t + i_2^2 \sin^2 \omega t + 2 i_1 i_2 \cos \omega t + \sin \omega t$

$\overline{i^2} = i_1^2 \times \dfrac{1}{2} + i_2^2 \times \dfrac{1}{2} + 0$ or $i_{rms} = \sqrt{\overline{i^2}} = \sqrt{(i_1^2 + i_2^2)/2}$

$i_{rms} = \dfrac{1}{\sqrt{2}} (i_1^2 + i_2^2)^{1/2}$

150. In a two-pulse bridge converter with free-wheeling diode the width of the diode current pulse is (a-firing angle)

    A. $\pi + \alpha$ B. $\pi - \alpha$

    C. π D. 2α

Ans. D

Sol. Freewheeling diode acts for 2α width in case of two-pulse bridge converter.

151. An analog voltage in the range 0 to 8 V is divided in 16 equal intervals for conversion to 4-bit digital output. The maximum quantization error (in V) is _____

    A. 0.20   B. 0.25

    C. 0.30   D. 0.40

Ans. B

Sol. Maximum Quantization Error = $\pm\Delta/2$, where Δ=Step Size

Δ=Step Size=$(V_{max} - V_{min})$/No. of levels = $(8 - 0)/16 = 0.5$

Max^m Quantization Error = $(0.5)/2 = 0.25$ V

152. A step up chopper has input voltage of 220 V and output voltage of 660 V. If the conducting time of thyristor chopper is 100μs, the pulse width of output voltage is

    A. 40 μs   B. 50 μs

    C. 60 μs   D. 70 μs

Ans. B

Sol. V_{dc} = 220, V_o = 660, T_{ON} = 100 μs.

$$V_o = \frac{V_{dc}}{(1-\alpha)} \Rightarrow 660 = \frac{220}{1-\alpha} \Rightarrow 1-\alpha = \frac{1}{3} \Rightarrow \alpha = \frac{2}{3}$$

$$\alpha = \frac{T_{ON}}{T} \Rightarrow \frac{2}{3} = \frac{100\ \mu s}{T}$$

∴ T = 150 μs

Output voltage ware form of step up chopper.
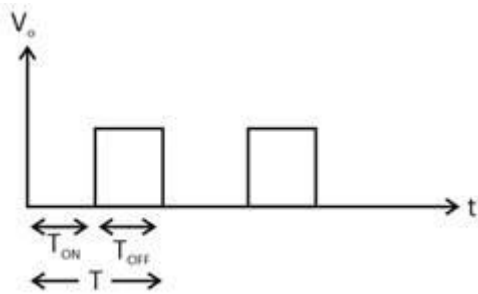
∴ Output pulse width = T_{OFF} = 150 – 100

$$\boxed{T_{OFF} = 50\mu s}$$

153. The inductance of a transmission line is minimum when

A. GMD is high   B. GMR is high

C. both GMD and GMR are high   D. GMD is low and GMR is high

Ans. D

Sol. The inductance of the transmission line is low when GMD is low and GMR is high

154. The impulse response h(n) of a linear time-invariant system is given by:

h(n) = u(n+3) +u(n-2) -2u(n-7) where u(n) is the unit step sequence. The above system is:

A. Stable but not causal   B. Stable but causal

C. Causal but unstable   D. Unstable and not causal

Ans. A

Sol. $$\sum_{k=-\infty}^{\infty} h(k) = \sum_{k=-3}^{\infty} u(k+3) + \sum_{k=2}^{\infty} u(k-2) - 2\sum_{k=7}^{\infty} u(k-7)$$

$$= \sum_{k=-3}^{6} 1 + \sum_{k=2}^{6} 1$$

$$= 10 + 5 = 15 < \infty$$

For bounded input, bounded output. So, the system is stable.

Response depends on future value of input signal i.e. u(n+3). So, system is not causal.

155. The inverse Fourier transform of

$$\frac{2(j\omega)^2 + 12j\omega + 14}{(j\omega)^2 + 6j\omega + 5}$$ is

A. $2\delta(t) + (e^{-t} - 2e^{-5t})\, u(t)$

B. $2t + (e^{-t} - 2e^{-5t})\, u(t)$

C. $2\delta(t) + (e^{-t} - e^{-5t})\, u(t)$

D. $2t + (e^{-t} - e^{-5t})\, u(t)$

Ans. C

Sol. $X(j\omega) = \dfrac{2(j\omega)^2 + 12j\omega + 14}{(j\omega)^2 + 6j\omega + 5}$

$= 2 - \dfrac{1}{5 + j\omega} + \dfrac{1}{1 + j\omega}$

(Using partial fraction method)

Taking inverse transform, we get

$x(t) = 2\delta(t) + (e^{-t} - e^{-5t})\, u(t)$

156. Let $x(n) = 16^n u(n) - b^{2n} u(-n-1)$. If the z-transform of x(n) exists. Then condition on 'b' is

A. $b > 4$

B. $-4 < b < 4$

C. $b < 4$

D. No values of 'b' is possible

Ans. A

Sol.

$x(n) = 16^n u(n) - b^{2n} u(-n-1)$

$x_1(n) = 16^n u(n)$

$X_1(z) = \dfrac{1}{1 - 16z^{-1}}$ $; |z| > 16$ (causal signal)

$x_2(n) = -b^{2n} u(-n-1)$

$X_2(z) = \dfrac{1}{1 - b^2 z^{-1}}$ $; |z| < b^2$ (non-causal signal)

For z-transform to exist, ROC should be in ring form i.e. non-causal signal.

$16 < |z| < b^2$

Hence, $b^2 > 16$

$\Rightarrow b > 4$

157. A piezo-electric type pressure sensor has a sensitivity of 1 mV/kPa and a bandwidth of 300 Hz to 300 kHz. For a constant (dc) pressure of 100 kPa, the steady state output of the sensor in millivolt is

A. 0

B. 2

C. 4

D. 6

Ans. A

Sol. A piezoelectric crystal transducer/sensor is an active sensor and it does not need the help of an external power as it is self-generating. Piezoelectric crystal produces output for dynamic output i.e. w= high but here 0 w= (static)

OR

Piezoelectric transducer produces output for changing input, but here input is constant, So output is 0

158. In a boost chopper circuit if Vs, Vo. L are input voltage, output voltage and inductance, respectively, and when the conducting switch is opened, the rate of change of inductive current is

A. $\dfrac{V_s}{L}$

B. $\dfrac{V_o}{L}$

C. $\dfrac{V_s - V_o}{L}$

D. $\dfrac{V_s + V_o}{L}$

Ans. C

Sol.
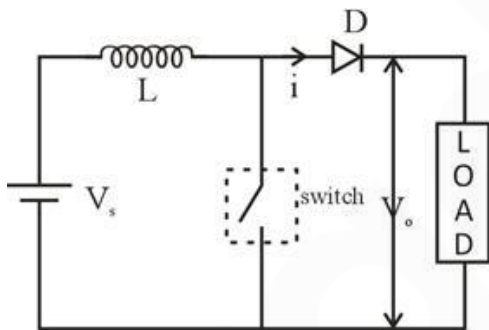
Boost converter

When the switch is opened and applying KVL to the circuit → $V_S = L\dfrac{di}{dt} + V_o$

$$L\dfrac{di}{dt} = V_s - V_0 \Rightarrow \boxed{\dfrac{di}{dt} = \dfrac{V_s - V_o}{L}}$$

159. What is the power of the given signal, x[n] = r[n − 1] − r[n − 6]

A. 25 W

B. 12.5 W

C. 55 W

D. 0 W

Ans. B

Sol. Signal is broken into two parts, (i). $1 \le n \le 6$ & (ii). n > 6
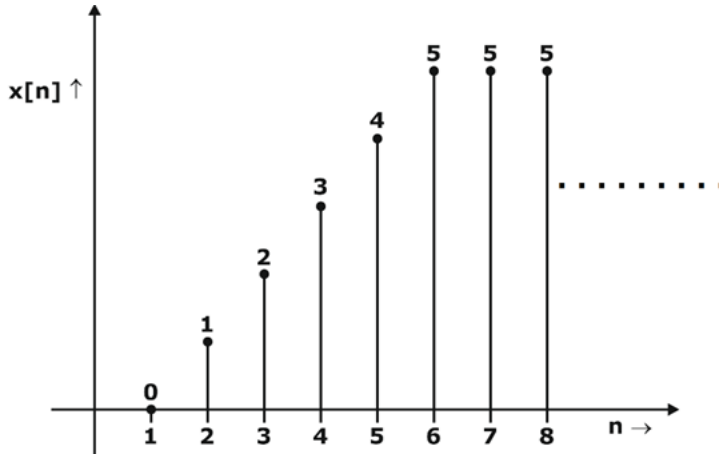
Power of non-periodic signal is given as

$$P = \lim_{N \to \infty} \frac{1}{2N+1} \sum_{-N}^{N} \left| x[n] \right|^2$$

$$= \lim_{N \to \infty} \frac{1}{2N+1} \left[\sum_{1}^{6} \left| x[n] \right|^2 + \sum_{7}^{N} (5)^2 \right]$$

$$= \lim_{N \to \infty} \frac{1}{2N+1} \left[0+1+4+9+16+25+5^2[N-7] \right]$$

$$= \lim_{N \to \infty} \left[\frac{55}{2N+1} + \frac{25[N-7]}{2N+1} \right]$$

$$= 0 + \frac{25}{2} = 12.5 \text{ W}$$

160. In an isolated neutral system, when a single line to ground fault occurs

   A. persistent grounds will be developed

   B. Voltage in healthy phase rise to full line value caving insulation break down.

   C. the capacitive phase current in the faulty phase rises 3-times its normal value

   D. All the above

Ans. D

Sol. In an isolated neutral system, while a single line to ground fault occurs

   • persistent grounds will be developed

   • Voltage in healthy phase rise to full line value caving insulation break down.

   • the capacitive phase current in the faulty phase rises 3-times its normal value

161. The inverse Laplace transform of the function $\dfrac{s+5}{(s+1)(s+3)}$ is

   A. $(2 e^{-t} - e^{-3t}) u(t)$ B. $(2 e^{-t} + e^{-3t}) u(t)$

   C. $(e^{-t} - e^{-3t}) u(t)$ D. $(e^{-t} + 2 e^{-3t}) u(t)$

Ans. A

Sol. $F(s) = \dfrac{s+5}{(s+1)(s+3)}$

$F(s) = \dfrac{A}{s+1} + \dfrac{B}{s+3}$

$F(s) = \dfrac{2}{s+1} + \dfrac{1}{s+3}$

$f(t) = 2e^{-t}u(t) - e^{-3t}u(t)$

162. In a 3-phase converter circuit during commutation when one SCR is in one phase is turned on to turn-off an SCR in another phase. Results in

A. voltage notching   B. harmonic distortion

C. voltage sag   D. voltage swell

Ans. A

Sol.
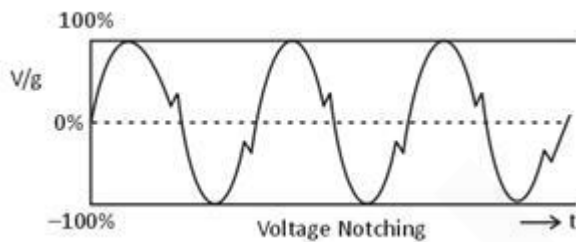
Voltage Notching

In a 3-φ converter during the communication, when one SCR is turned to turned OFF it results voltage notching.

It is described as a recurring power quality disturbance due to normal operation of power electronic devices. When current is commutated from one phase to another.

Voltage Notching is caused by three phase converter that generate continuous DC current.

163. An instrument which is used to see the electric signal directly in waveform is

A. videograph   B. frequency meter

C. CRO   D. wave scanner

Ans. C

Sol. CRO is an instrument which is used to see the electric signal directly in waveform.

164. Five identical alternator each rated for 50MVA, 11KV having sub transient reactance of 20% are working in parallel. The short circuit level (in MVA) at the busbar is

A. 1000   B. 1250

C. 1300   D. 1500

Ans. B

Sol. Since five identical alternators are in parallel, so, $X_{eq} = 4\%$

short circuit level (in MVA) $= \dfrac{Base\ MVA}{x_{eq}} = \dfrac{50}{0.04} = 1250$
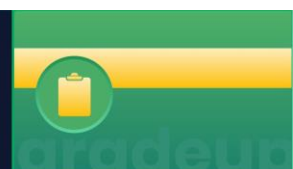
165. A single-phase current source inverter is connected with capacitive load only the waveform of the output voltage across the capacitor for constant source current will be

A. Sine wave

B. Square wave

C. triangular wave

D. step function

Ans. C

Sol. $I_c = \dfrac{cdV_c}{dt}; V_c = \dfrac{1}{C}\int I_c dt$

For constant I_c

$V_c = \dfrac{I_c}{C}.T$

∴ V_c can be triangular wave

166. What happens to corona loss if frequency of the system is increased?

A. Increases

B. decreases

C. not affected

D. none

Ans. A

Sol. As we know that frequency and corona loss have relation as $P \, \alpha \, (f + 25)$

Thus, by increasing the frequency f of the system corona loss can be increased.

167. A single-phase mid-point full-wave SCR converter with maximum mid-point voltage of V_{max} volts, develops an average output voltage across a resistive load at firing delay angles of 0 and π/2 rad., respectively, as

A. $\dfrac{2V_{max}}{\pi}, \dfrac{V_{max}}{\pi}$

B. $\dfrac{V_{max}}{\pi}, \dfrac{V_{max}}{2\pi}$

C. $\dfrac{V_{max}}{2\pi}, \dfrac{V_{max}}{\pi}$

D. $\dfrac{V_{max}}{\pi}, -\dfrac{V_{max}}{2\pi}$

Ans. A

Sol. We know that

Average output voltage $V_o = \dfrac{V_m}{\pi}(1+\cos\alpha)$

α = 0

$V_o = \dfrac{V_m}{\pi}(1+\cos\alpha) = \dfrac{2V_m}{\pi}$

$\alpha = \dfrac{\pi}{2}$

$V_o = \dfrac{V_m}{\pi}\left[1+\cos\dfrac{\pi}{2}\right] = \dfrac{V_m}{\pi}$

168. What is the even part of the signal x(n), whose Fourier transform is $X(e^{j\omega}) = 1 + \cos \omega$?

A. $\left\{ \dfrac{1}{2}, \underset{\uparrow}{1}, \dfrac{1}{2} \right\}$

B. $\left\{ 1, \underset{\uparrow}{2}, 1 \right\}$

C. $\left\{ \underset{\uparrow}{\dfrac{1}{2}}, 1, \dfrac{1}{2} \right\}$

D. $\left\{ -\dfrac{1}{2}, \underset{\uparrow}{1}, \dfrac{1}{2} \right\}$

Ans. A

Sol. $x\left(e^{j\omega}\right) = 1 + \dfrac{1}{2}e^{j\omega} + \dfrac{1}{2}e^{-j\omega}$

$x(n) = \left\{ \dfrac{1}{2}, \underset{\uparrow}{1}, \dfrac{1}{2} \right\}$

$x(-n) = \left\{ \dfrac{1}{2}, \underset{\uparrow}{1}, \dfrac{1}{2} \right\}$

Even part = $\dfrac{x(n) + x(-n)}{2} = \dfrac{\left\{ 1, \underset{\uparrow}{2}, 1 \right\}}{2} = \left\{ \dfrac{1}{2}, \underset{\uparrow}{1}, \dfrac{1}{2} \right\}$

$\Rightarrow$ Even part of $x(n) = \left\{ \dfrac{1}{2}, \underset{\uparrow}{1}, \dfrac{1}{2} \right\}$

169. The bridge method commonly used for finding mutual inductance is

    A. Heaviside Campbell bridge
    B. Schering bridge
    C. De Sauty bridge
    D. Wien bridge

Ans. A

Sol. In Heaviside Campbell bridge, Mutual inductor is used in various circuits as main component in determining the value of self-inductance, capacitance and frequency etc.
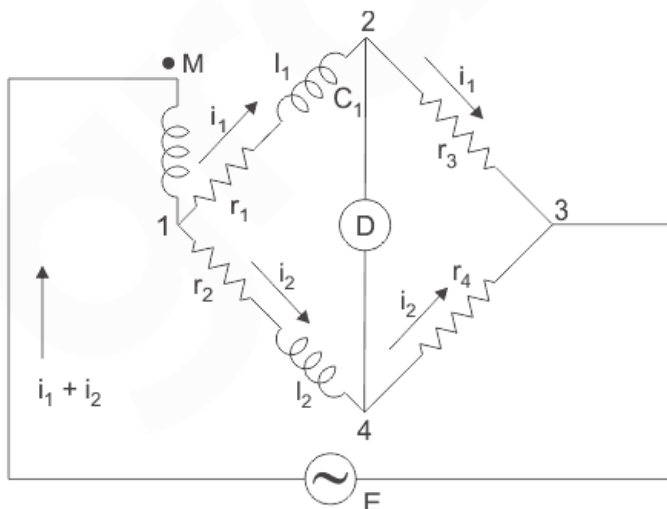
Hence, the correct answer is option (A).

170. How many essential prime implicants are there in the given k-map?

A. 3

B. 2

C. 4

D. 1

Ans. B

Sol.

$A\bar{B}$ and $\bar{A}B$ are essential prime implicants because only these two have at least single '1' which can have only one pairing.

171. In the circuit shown below
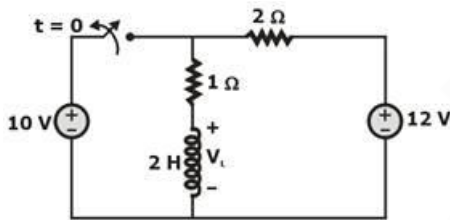
The switch is closed for a long time and it is opened at t = 0. The energy stored in inductor at steady state is

A. 20 J

B. 32 J

C. 16 J

D. 0 J

Ans. C

Sol.   at t = ∞:
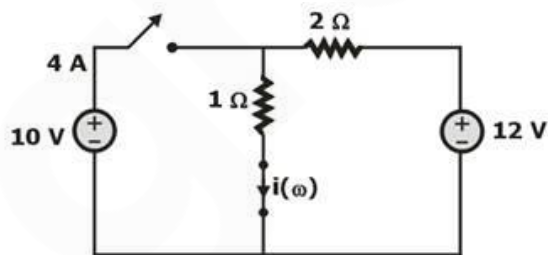
$I(\infty) = 12/3 = 4$ A

$E = \dfrac{1}{2} Li^2$

$E = 1/2 \times 2 \times 4^2$

$E = 16$ J

172. What is the SI unit for magnetic reluctance?

 A. Tesla

 B. Henry

 C. Tesla-1

 D. Henry^{-1}

Ans. D

Sol. Magnetic reluctance is a scalar extensive quantity, akin to electrical resistance. The unit for magnetic reluctance is inverse henry, H^{-1}.

173. When a time varying signal has to be digitized using an ADC, which one of the following is necessary to use before digitization?

 A. An instrumentation amplifier

 B. A sample and hold circuit

 C. A frequency division multiplexing

 D. A time division multiplexer

Ans. B

Sol. A sample and hold circuit takes samples at particular instant which is needed to digitize the signal.

174. Which of the following is the correct output of the given circuit?

C. None of the above
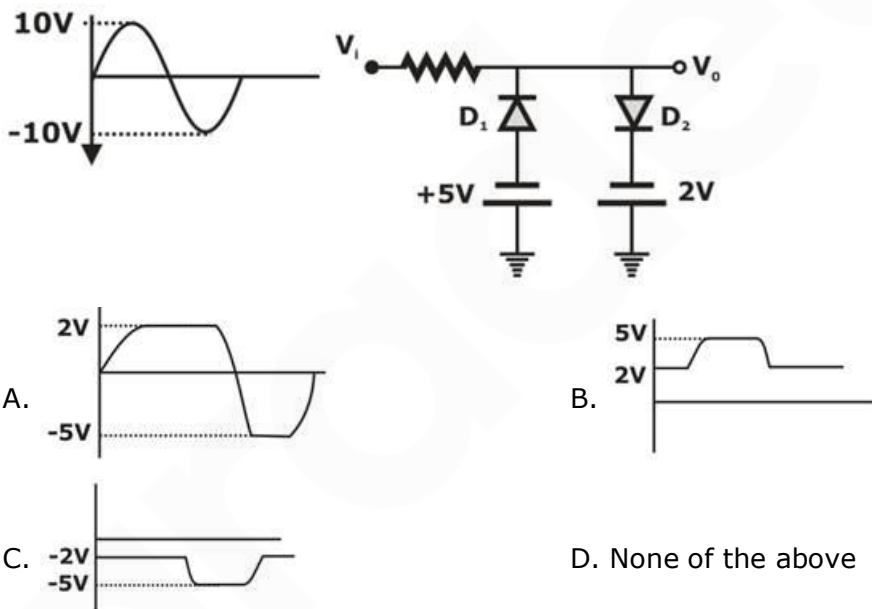
Ans. C

Sol. When $V_i > 0$, D_2 is forward biased.

 $V_0 = -2V$

 When $-2V < V_i < 0$, again $V_0 = -2V$

 When $-5V < V_i < -2V$, D_1 and D_2 both reverse biased.

 $V_0 = V_i$

 When $-10V < V_i < -5V$, D_1 is forward biased

 Hence $V_0 = -5V$.

175. Grading of the cables is performed in order to achieve

    (i) Uniform stress

    (ii) Reduction in quantity of insulation

    (iii) Reduction in quality of insulation

    A. (i), (ii)   B. (ii)

    C. (i), (iii)   D. (ii), (iii)

Ans. A

Sol. Grading of cables is performed in order to achieve uniform stress across the insulator rings and it also lead to reduction in quantity of insulation

176. The full load voltage regulation of an alternator is 6 % at 0.8 p.f. lagging and at rated speed of 1200 rpm. Its full load regulation at 0.8 p.f. lagging and at 1100 rpm would be (assume negligible armature resistance).

    A. 5.7 %   B. 6.5 %

    C. 6 %   D. 5.5 %

Ans. C

Sol. Since,

Voltage regulation,

$$\% \text{ voltage regulation} \approx \frac{I_a X_a}{E} \times 100$$

As we know that,

$$E \propto f$$

$$X \propto f$$

Therefore, the voltage regulation will be independent of speed variation and voltage regulation remain same.

177. In a salient pole synchronous motor, the developed reluctance torque attains the maximum value when the load angle in electrical degrees is

    A. 0   B. 45

    C. 60   D. 90

Ans. B

Sol. Salient pole synchronous motor power and torque relations per phase.

$$P = \frac{E_o V}{X_t} \sin \delta + \frac{v^2}{2} \left[\frac{x_a - x_q}{x_d x_q} \right] \sin(2\delta)$$

$$T = \frac{60}{2\pi N_s} \left[\frac{E_o V}{X_d} \sin \delta + \frac{v^2}{2} \left[\frac{x_d - x_2}{x_d x_q} \right] \sin 2\delta \right]$$

The second turn is reluctance power or reluctance torque, which is directly proportional to sin2δ. Therefore, reluctance torque will be maximum when δ = 45°. This is true because sin 2 (45°) = sin 90° = 1 (maximum)

178. The positive sequence current of a transmission line is

    A. always zero

    B. one-third of negative sequence current

    C. three times the negative sequence current

    D. equal to negative sequence current

Ans. D

Sol. In static and balanced power system components like transformer and lines, the sequence impedance offered by the system are the same for positive and negative sequence currents. In other words, the positive sequence impedance and negative sequence impedance are same for transformers and power lines.

179. For a given connected network and for the fixed tree, fundamental loop matrix is given by

$$[T] = \begin{bmatrix} 1 & 0 & 0 & 0 & -1 & -1 & 0 & 0 \\ 0 & 1 & 0 & 0 & 0 & -1 & 1 & 0 \\ 0 & 0 & 1 & 0 & 0 & 0 & 1 & 1 \\ 0 & 0 & 0 & 1 & -1 & 0 & 0 & 1 \end{bmatrix}$$

The cut set matrix corresponding to the same tree is

A. $\begin{bmatrix} 1 & 0 & 0 & 1 & 1 & 0 & 0 & 0 \\ 1 & -1 & 0 & 0 & 0 & 1 & 0 & 0 \\ 0 & 1 & 1 & -1 & 0 & 0 & 1 & 0 \\ 0 & 0 & -1 & 1 & 0 & 0 & 0 & 1 \end{bmatrix}$ B. $\begin{bmatrix} 1 & 0 & 0 & 1 & 1 & 0 & 0 & 0 \\ 1 & 1 & 0 & 0 & 0 & 1 & 0 & 0 \\ 0 & -1 & -1 & 0 & 0 & 0 & 1 & 0 \\ 0 & 0 & -1 & -1 & 0 & 0 & 0 & 1 \end{bmatrix}$

C. $\begin{bmatrix} 1 & 0 & 0 & -1 & 1 & 0 & 0 & 0 \\ 1 & -1 & 0 & 0 & 0 & 1 & 0 & 0 \\ 0 & -1 & 1 & -1 & 0 & 0 & 1 & 0 \\ 0 & 0 & -1 & 1 & 0 & 0 & 0 & 1 \end{bmatrix}$ D. $\begin{bmatrix} -1 & 0 & 0 & -1 & 1 & 0 & 0 & 0 \\ 1 & 1 & 0 & 0 & 0 & 1 & 0 & 0 \\ 0 & -1 & -1 & 1 & 0 & 0 & 1 & 0 \\ 0 & 0 & -1 & 1 & 0 & 0 & 0 & 1 \end{bmatrix}$

Ans. B

Sol. Relationship between tie-set matrix and cut-set matrix

[B] = tie-set matrix = [I : B$_T$]

[Q] = tie-set matrix = [Q$_1$: I]

Where $[Q_l] = - [B_T]^T$

$$[B_T] = \begin{bmatrix} -1 & -1 & 0 & 0 \\ 0 & -1 & 1 & 0 \\ 0 & 0 & 1 & 1 \\ -1 & 0 & 0 & 1 \end{bmatrix}$$

$$[Q_l] = - \begin{bmatrix} -1 & 0 & 0 & -1 \\ -1 & -1 & 0 & 0 \\ 0 & 1 & 1 & 1 \\ 0 & 0 & 1 & 1 \end{bmatrix}$$

$$= \begin{bmatrix} 1 & 0 & 0 & 1 \\ 1 & 1 & 0 & 0 \\ 0 & -1 & -1 & -1 \\ 0 & 0 & -1 & -1 \end{bmatrix}$$

$$[Q] = \begin{bmatrix} 1 & 0 & 0 & 1 & 1 & 0 & 0 & 0 \\ 1 & 1 & 0 & 0 & 0 & 1 & 0 & 0 \\ 0 & -1 & -1 & 0 & 0 & 0 & 1 & 0 \\ 0 & 0 & -1 & -1 & 0 & 0 & 0 & 1 \end{bmatrix}$$

180. The circuit employing Class C commutation has $V_s = 100$ V, $R_1 = 50$ Ω and $R_2 = 100$ Ω. The peak value of current through thyristor T_2 is

A. 10 A

B. 2.5 A

C. 5 A

D. 7.5 A

Ans. C

Sol. Circuit diagram of class C commutation is
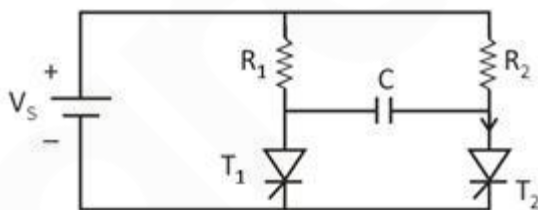
Peak value of current through T_2 is

$$I_{2(max)} = V_s \left[\frac{2}{R_1} + \frac{1}{R_2} \right] = 100 \left[\frac{2}{50} + \frac{1}{100} \right] = 5A$$

181. Find the number of Prime implicants &Essential prime implicants in the given K-map

A. 4, 5

B. 0, 6

C. 6, 0

D. 6, 6

Ans. D

Sol.
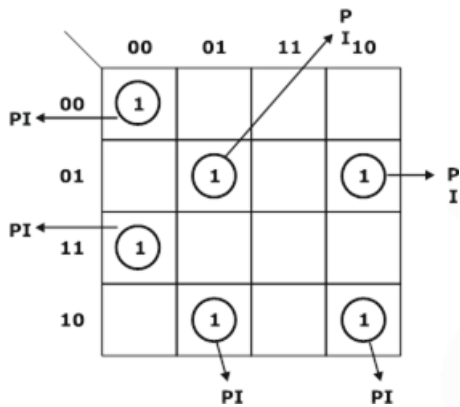
All prime implicants are Essential prime implicants.

182. Number of commutator bars for a 4-pole, 2-layer, DC lap winding with 24 slots and conductor per layer is

A. 48

B. 24

C. 192

D. 96

Ans. B

Sol. P = 4; Double lap around DC machine conductor per layer = 1. Slot S = 24.

Total number of conductor = 24 × 2 = 48

The number of commutator segment equal to the number of slot or half the number of total conductor.

Therefore the number of commutator bar = 24. It is because each coil has two ends and two coil connection are joined at each commutator segment.

183. The topology of given circuit is
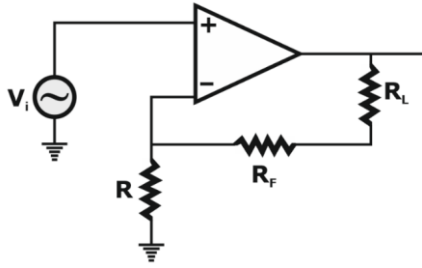
    A. Current series   B. Voltage series

    C. Current shunt   D. Voltage shunt

Ans. A

Sol. Since the feedback element is not directly connected to the output node, current sampling is done. Also, the feedback element is not connected to the input node of Op-amp , series mixing is present. Hence topology is current series.

184. Match List-I (Test) with List-II (Object) and select the correct answer using the codes given below the lists:

List-I:

A. Slip test

B. Open circuited and zero power factor test

C. Sumpner's test

D. Swinburne's test

List-II:

1. Determination of full load copper losses of a transformer.

2. Determination of efficiency and constant losses of DC machine.

3. Determination of synchronous Potier reactance of synchronous machine.

4. Determination of direct and quadrature axis synchronous reactance of salient pole synchronous machine.

The correct order of sequence of List-I (A B C D) is

    A. 2 1 3 4   B. 4 3 1 2

    C. 2 3 1 4   D. 4 1 3 2

Ans. B

Sol. 1) Slip test is used to determine direct and quadrature axis synchronous reactance of salient pole type synchronous machine.

2) Open circuit test and zero power factor test is used to determine synchronous Potier reactance of the synchronous machine.

3) Sumpner's test is used to determine full load copper losses of a transformer.

4) Swinburne's test is used to determine efficiency and constant losses of a DC machine.

185. Surge impedance of 3 Phase, 400 kV transmission line is 200 Ω. The surge impedance loading of the transmission line is
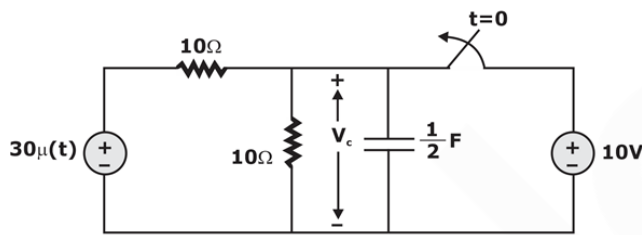
A. 400 MW
B. 1600 MW
C. 200 MW
D. 800 MW

Ans. D

Sol. Surge impedance loading = V^2/z

V = 400 kv

Z = 200 Ω

$$SIL = \frac{(400)^2}{200} = 8000mw$$

186. The switch has been closed for a long time and opened at t = 0. The voltage across the capacitor is Vc then find the value of $\dfrac{dV_{c(0^-)}}{dt} = ?$
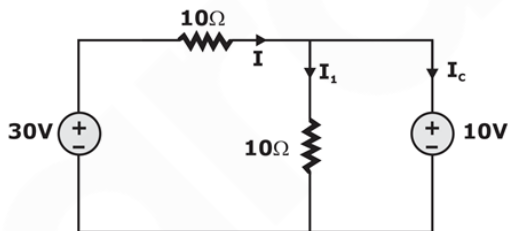

where u(t) is a step function.

A. 2 V/sec
B. 1 V/sec
C. 0.5 V/sec
D. 4 V/sec

Ans. A

Sol. Voltage across the capacitor before t = 0. Here, Vc = 10V.

So, the circuit at t = 0+

$$I = \frac{30-10}{10} = 2A$$

$$I_1 = \frac{10}{10} = 1A$$

$I_c = I - I_1$, $I_c = 2 - 1 = 1$ A

$$I_c = C\frac{dV_c}{dt}(0^+)$$

So, $\dfrac{dV_{c(0^+)}}{dt} = \dfrac{I_c}{c} = \dfrac{1}{1/2} = 2V/sec$

187. An open loop system represented by the transfer function, $G(s) = \dfrac{(s-1)}{(s+2)(s+3)}$ is

    A. Stable and of the minimum phase type

    B. Stable and of the non-minimum phase type

    C. Unstable and of the minimum phase type

    D. Unstable and of the non-minimum phase type

Ans. B

Sol. The closed loop transfer function is given by,

$$T(s) = \dfrac{\dfrac{(s-1)}{(s+2)(s+3)}}{1 + \dfrac{(s-1)}{(s+2)(s+3)}} = \dfrac{(s-1)}{s^2 + 5s + 6}$$

The system is stable as its poles lies on the left side of the s plane and it is non-minimum phase type as one zero lies in the right half of the s plane.

188. A 220 V, 25 KW DC shunt motor has a maximum efficiency of 87% at a shaft load of 20 KW and speed of 900 rpm. Field resistance is 110 Ω. The armature resistance and rotational loss of the machine are

    A. $R_a = 0.14\ \Omega$, $P_{rot} = 1054.25$ W   B. $R_a = 0.056\ \Omega$, $P_{rot} = 590.5$ W

    C. $R_a = 0.25\ \Omega$, $P_{rot} = 620.25$ W   D. $R_a = 0.32\ \Omega$, $P_{rot} = 800$ W

Ans. A

Sol. $P_{in} = \dfrac{P_{out}}{\eta} = \dfrac{20000}{.87} = 22988.5\ W$

$I_L = \dfrac{P_{in}}{220} = \dfrac{22988.5}{220} = 104.49\ A$

$I_{sh} = \dfrac{220}{110} = 2\ A$

$I_a = I_L - I_{sh} = 104.49 - 2 = 102.49$ A

at $\eta = \eta_{\ max}$

$P_{loss} = P_{in} - P_{out} = 2988.5$ W

Constant loss = variable loss = $P_{loss} / 2 = 1494.25$ W

variable loss = $I_a{}^2 R_a = 1494.25$ W

$R_a = \dfrac{1494.25}{102.49^2} = 0.1422\ \Omega$

Constant loss = $P_{rot} + I_{sh}{}^2 R_{sh} = 1494.25$

$P_{rot} = 1054.25$ W

189. Which of the following compensator will Increase the bandwidth of the system:
    A. Phase lag
    B. Phase lead
    C. Lag-lead
    D. None of these

Ans. B

Sol. Phase lead compensation is used to improve stability margins. It increases system bandwidth thus improving the spread of the response.

190. which of the following Statements about L-C oscillators is not true?
    A. LC oscillators are used for high frequencies
    B. Hartley oscillator is preferred compared to Colpitt's because of better β selection
    C. At very high frequencies, Colpitt's oscillators become unstable.
    D. In clap oscillator there are four energy storing components present.

Ans. B

Sol. Colpitt's oscillator is preferred over Hartley. Because Colpitt has better β selection than Hartley.

191. A parallel plate capacitor of 10 pF having an air dielectric is charged to 1 kV. It is then electrically isolated. The plates are pulled away from each other until the distance is ten times more than before. Calculate the energy needed to pull the plates?
    A. 4.5×10^{-6} J
    B. 2×10^{-6} J
    C. 10^{-6} J
    D. 6×10^{-6} J

Ans. A

Sol.

$$E_1 = \frac{1}{2} c_1 V_1^2$$

$$= \frac{1}{2} \times 10 \times 10^{-12} \times (1 \times 10^3)^2$$

$$= 0.5 \times 10^{-5} \text{ J}$$

$$= 5 \times 10^{-6} \text{ J}$$

$E_2 = \frac{1}{2} C_2 V_2^2$ in this case, capacitance is inversely proportional to distance

$$C \times \frac{1}{d}$$

$$\frac{C_1}{C_2} = \frac{d_2}{d_1}$$

$$\frac{C_1}{10} = C_2$$

$$E_2 = \frac{1}{2} \times (1 \times 10^{-12}) \times (1 \times 10^3)^2$$

= 5 × 10⁻⁷ J

DE = E₁ − E₂

= (5 × 10⁻⁶) − (5 × 10⁻⁷)

DE = 4.5 × 10⁻⁶ J

192. In an intrinsic semiconductor the conductivity is

    A. same due to electrons and holes

    B. more because of holes than electrons.

    C. none of the above

    D. All of these

Ans. B

Sol. In an intrinsic semiconductor the conductivity is given by

    σ = N$_I$ (μ e + μ h) q

    μ e = mobility of electrons, μ h = mobility of holes.

    Since μ e > μ h

    So, conductivity due to electrons is higher than holes.

193. A 220 V DC machine has an armature resistance of 1 Ω. If the full load current is 20 A, what is the difference in induced voltage when the machine is running as generator and motor under full load condition

    A. 0 V   B. 20 V

    C. 40 V   D. 60 V

Ans. C

Sol. For the DC motor

    V = E + IaRa

    220 = E + 20 × 1

    E$_m$ = 200V

    For generator

    E = V + IaRa

    E$_g$ = 220 + 20 × 1 = 240V

    E$_g$ − E$_m$ = 240 − 200 = 40V

194. Which of the following effects in the system is not caused by negative feedback?

    A. Reduction in gain   B. Increase in bandwidth

    C. Increase in distortion   D. Reduction in output impedance

Ans. C

Sol. Negative feedback led to decrease in distortion and noise.

195. A dual-slope A/D converter has a resolution of 4 bits. If the input clock rate is 3.2 kHz, then the worst-case conversion rate at which the analog samples can be converted into their digital equivalent is:

A. 200 Samples / sec   B. 400 samples / sec

C. 100 samples / sec   D. 50 samples / sec

Ans. C

Sol. The maximum conversion time for a dual slope A/D converter can be approximately

$$T_{C(max)} = 2^{n+1} T_{clock}$$

$$\therefore T_{C(max)} = 2^{4+1} x \frac{1}{f_{clock}}$$

$$T_{C(max)} = \frac{2^5}{3.2 \ x \ 10^3} = 10 \ ms$$

Thus, the worst case conversion rate is :

$$R_{min} = \frac{1}{T_{c(max)}} = 100 \ samples/sec$$

196. A transmission Line has equal voltages at the two ends, maintained constant by two sources. A third source is to be provided to maintain constant voltage equal to the end voltages at either the mid-point of the lines (case 1) or at 75% of the distance mm sending end (case 2), The maximum power transfer capabilities, of the line in the original case, case 1 and case 2 respectively, will be in the ratio of

A. 1 : 1 : 1   B. $1:2:\dfrac{1}{0.75}$

C. 1 : 2 : 4   D. 1 : 4 : 16

Ans. B

Sol. $P_{max} = \dfrac{v^2}{x}$

With compensator at mid point

$$P^1 = \frac{v^2}{x/2} \sin\frac{\delta}{2}$$

$$P^1_{max} = 2P_{max} \quad \text{............(2)}$$

With compensator at 75% distance

x' = 0.75x

$$P''_{max} = \frac{V^2}{0.75x} = \frac{1}{0.75}P_{max} \quad \text{.............(3)}$$

From (1), (2) and (3)

Ratio is $1:2:\dfrac{1}{1.75}$

197. In the inductance and capacitance of a power system are respectively 1 H and 0.01 μF and the instantaneous value of interrupted current is 10 A, then the voltage across breaker contact will be

A. 50 kV   B. 57 kV

C. 60 kV   D. 100 kV

Ans. D

Sol. Voltage across breaker contact = V_B

$$V_B = I \sqrt{\frac{L}{C}}$$

I = interrupting current

$$V_B = 10 \sqrt{\frac{1}{0.01 \times 10^{-6}}} = 100 KV$$

198. A 10 KVA, 200 V/2000 V transformer is feeding a load resistance of 2.5 p.u. based on ratings of HV side. The actual value of load resistance referred to LV side?

A. 10 Ω   B. 100 Ω

C. 1000 Ω   D. 10000 Ω

Ans. A

Sol. $R_L (HV\ side) = 2.5 \times Z_{base} = 2.5 \times \frac{(KV)^2_{base}}{MVA_{base}} = 2.5 \times \frac{(200)^2}{10000} = 10\Omega$

199. A 10 pole, 25 Hz alternator is directly driven by a 60 Hz synchronous motor. Then the number of poles in the synchronous motor are

A. 48   B. 12

C. 24   D. 10

Ans. C

Sol. Let the synchronous speed of the motor be N_{sm}

We know that,

$$N_{sm} = \frac{120 \times f_m}{P_m}$$

Where, f_m = frequency of the motor

P_m = Number of poles of motor

Therefore,

$$N_{sm} = \frac{120 \times 60}{P_m}$$

Synchronous speed of the generator (or alternator) is

$$N_{sg} = \frac{120 \times f_g}{P_g} = \frac{120 \times 25}{10} = 300\ rpm$$

Since, the alternator and synchronous motor are directly connected or coupled, then

$$N_{sg} = N_{sm}$$

$$300 = \frac{120 \times 60}{P_m}$$

$$P_m = \frac{120 \times 60}{300}$$

$$P_m = 24$$

Therefore, the number of poles of synchronous motor is 24.

200. All poles and zeros of driving point immittance function, an LC network

    A. should lie on the jω-axis

    B. should lie on the positive real axis

    C. should lie on the negative real axis

    D. can lie anywhere in s-plane

Ans. A

Sol. All zeros and poles lie on jω-axis a driving point immittance function of an LC network.

****

Upcoming Mini Mock Challenge in **June** Month

SSC JE

Electrical Engineering

Exam	Live Date	Syllabus	No. of Questions	Time
SSC JE Mini Mock Test-1	06 June 2020	Full Syllabus (Tech. (30 Q's) & Non-Tech. (20 Q's))	50	30
SSC JE Mini Mock Test-2	13 June 2020	Full Syllabus (Tech. (30 Q's) & Non-Tech. (20 Q's))	50	30
SSC JE Mini Mock Test-3	20 June 2020	Full Syllabus (Tech. (30 Q's) & Non-Tech. (20 Q's))	50	30
SSC JE Mini Mock Test-4	27 June 2020	Full Syllabus (Tech. (30 Q's) & Non-Tech. (20 Q's))	50	30

gradeup

Prep Smart. Score Better. Go gradeup

www.gradeup.co