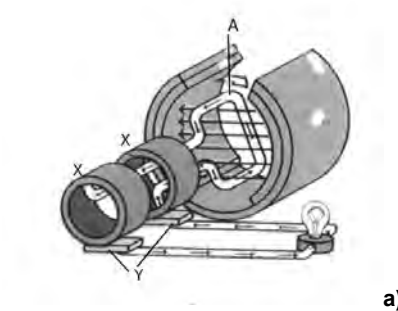
PRINT

Qn No. 1 *Chapter Name:3. Vydhutha Kanthika Preranom*

Qn.
The figure of a generator is given below.



a)What do the parts X , A represent in the figure.

b)What is the energy change occurs in such a device

c)What is the use of part Y in the figure

Hint.
a) X-slip ring, A-armature

b)Mechanical energy changes to electrical energy

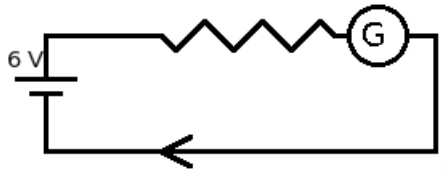
c) supply electrical energy to external circuit

Marks :(3)

Hide Answer

Qn No. 2 *Chapter Name:3. Vydhutha Kanthika Preranom*

Qn.
The figure shows a resister, galvanometer connected to a 6V battery .



a)In what way the instruments got connected in the circuit.

b)in which direction does the galvanometer needle deflects.

c)If the battery is replaced by an AC source, what change may be observed in the deflection of galvanometer needle? Why?

Hint.
a) series combination

b) single direction only

c) direction revrses continuously

Marks :(4)

Hide Answer

Qn No. 3 *Chapter Name:3. Vydhutha Kanthika Preranom*

Qn.
In our country the frequency of AC produced for transmission is 50Hz.

a)What does it mean by frequency of an AC?

b)In one second, how many times the direction of emf change?

Hint.
a) number of cycles in one second

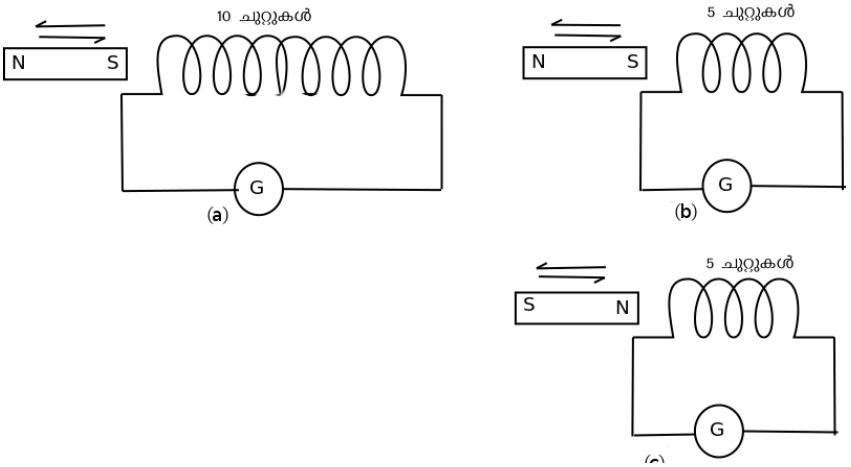
b) 50 times

Marks :(3)

Hide Answer

Qn No. 4 ***Chapter Name:3. Vydhutha Kanthika Preranom***

Qn.
Observe the figures a,b,c given below and answer the questions (Solenoid,Bar magnet and galvanometer)



a)In which solenoid the intensity of current is more?

b)What will be the change in deflection of the galvanometer if the magnet in b &c circuits get into the solenoid.

Hint.
a)a

b)galvanometer needle in circuit b deflects in opposite direction to deflection of galvenometer needle in circuit c

Marks :(1)

Hide Answer

Qn No. 5 ***Chapter Name:3. Vydhutha Kanthika Preranom***

Qn.
An armature coil of an AC generator when moved in the magnetic field, induced current is produced.

a)Which is the law that helps to find the direction of current.

b)As per the law what does the fore finger represent?

Hint.
a) Flemings right hand rule

b) Magnetic field

Marks :(2)

Hide Answer

Qn No. 6 ***Chapter Name:3. Vydhutha Kanthika Preranom***

Qn.
Whenever change occurs to the magnetic flux connected to a closed circuit, a current is induced.

a) What is this phenomenon known as?

b)Name an instrument that works based on this principle.

Hint.
a) electromagnetic induction

b) Microphone/generator

Marks :(2)

Hide Answer

Qn No. 7 ***Chapter Name:3. Vydhutha Kanthika Preranom***

Qn.
Find out the correct statement/statements from those given below.

a)when a magnet is moved close to a solenoid, the magnetic flux linked with the solenoid will decrease.

b)when a magnet is moved close to a solenoid, the magnetic linked with the solenoid will increase.

c)when a magnet is moved close to a solenoid, the magnetic flux linked with the solenoid remains the same

Hint.
when a magnet is moved close to a solenoid, the magnetic linked with the solenoid will increase.

Marks :(1)

Hide Answer

Qn No. 8 ***Chapter Name:3. Vydhutha Kanthika Preranom***

Qn.
The figure given below shows an instrument that changes sound energy into electrical energy.

a)Name the parts A and B in the figure?

b)In such an instrument, explain how the sound energy is changed into electrical energy?

Hint.
a. A-Diphram, B-Voice coil

b. When sound signal falls on diaphram it vibrates.This causes voices coil to vibrate placed in magnetic field. Flux linked with the voice col changes and electrical signals are produced

Marks :(3)

Hide Answer

Qn No. 9 ***Chapter Name:3. Vydhutha Kanthika Preranom***

Qn.
Some relations regarding transformers are given below.Among these select and write down the one that relates to step up transformersSome relations regarding transformers are given below.Among these select and write down the one that relates to step up transformers

a) $V_s > V_p$

b) $I_s < I_p$

c)) $I_s > I_p$

d) $V_p > V_s$

Hint.
a, b

Marks :(1)

Hide Answer

Qn No. 10 ***Chapter Name:3. Vydhutha Kanthika Preranom***

Qn.
Correct error in the underlined part of the following statements if any

a)To complete one cycle of an AC, an armature needed to rotate 360^0.

b) if frequency of an AC is 50Hz, the armature completes 25 cycles per second

c)In an AC generator, current reverses direction in each half rotation

Hint.
b) AC of frequency is 50Hz has 50 cycles per second

c) In an AC generator, electric current flows in one direction for the first half rotation and reverses direction in the next half

Marks :(2)

Hide Answer

Qn No. 11 ***Chapter Name:3. Vydhutha Kanthika Preranom***

Qn.
A transformer has 10000 turns and 240V , 0.2A in the primary coil. If the current through secondary coil is 0.4A.

a)What kind of transformer is this?

b)Find out the voltage and number of turns in the secondary coil.

.

c)Calculate maximum power in the secondary coil of this transformer.

Hint.
b) Vp x Ip = Vs x Is , Vs = 240 x 0.2 / 0.4 = 120 V

Vs/Vp = Ns/Np 120/240 = Ns/ 10000 Ns = 120 x 10000 / 240 = 50000 nos

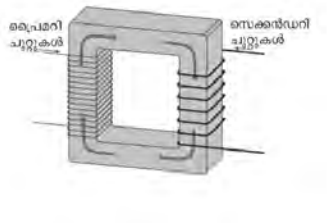
c) P = VI = 240 x 0.2 = 48 W

Marks :(4)

Hide Answer

Qn No. 12 ***Chapter Name:3. Vydhutha Kanthika Preranom***

Qn.
Given below is the figure of a transformer



a)What kind of transformer is shown here?

b)why thick coil is used in the secondary of the transformer.

Hint.
a. stepdown transformer

b. secondary current increases

Marks :(2)

Hide Answer

Qn No. 13 ***Chapter Name:3. Vydhutha Kanthika Preranom***

Qn.
the figures of the two stages of an armature that rotates in a magnetic field is shown below .

a)Select the figure in which plane of the armature coil comes parallel to the magnetic field.

b)identify the stage where emf induced is maximum.

c)Compare the stages (i), (ii) and explain change in the magnitude of emf.

Hint.
a. fig b

b. fig b

c. stage1- No flux variation and emf=0

stage 2- Fulx variation is maximum.so emf is maximum

Marks :(3)

.

Hide Answer

Qn No. 14 *Chapter Name:3. Vydhutha Kanthika Preranom*

Qn.
Name the electronic components given below.

b) If each of these is connected to an AC circuit, which circuit has more power loss?Why?

Hint.
a. i-resistor, ii-Inductor

b. circuit containing resistor. A resistor causes wastage of energy in the form of heat

Marks :(3)

Hide Answer

Qn No. 15 *Chapter Name:3. Vydhutha Kanthika Preranom*

Qn.
Given below is the picture of a transformer.

a)If 12V DC is given as input, how much is the output voltage.

b)If 12V AC is given as the input, what would be the out put voltage.

c)At this juncture what is the voltage in one coil of the secondary.

Hint.
a. 0 V

b. Vs/Vp = Ns/Np

Vs = (Ns/Np) * Vp = (2000/100) * 12 = 240 V

c. Vs = Ns * e

e = Vs/Ns , 240/2000 = 0.12 V

Marks :(3)

Hide Answer

Qn No. 16 *Chapter Name:3. Vydhutha Kanthika Preranom*

Qn.
Find out the odd one and Justify your answer.

Microphone, loud speaker, Transformer, Generator,

Hint.
loud speaker. All other devices works based on electromagnetic induction

Marks :(1)

.

Hide Answer

Qn No. 17 *Chapter Name:3. Vydhutha Kanthika Preranom*

Qn.
By increasing diameter of conductors, transmission loss could be reduced.

a) What are the difficulties that arises if thick wires used as transmission lines

b)Suggest another method to reduce transmission loss.

Hint.
a. if thickness increses , weight increases, more supporting beams are required and expense increases

b. decrease current by increasing volage

Marks :(3)

Hide Answer

Qn No. 18 *Chapter Name:3. Vydhutha Kanthika Preranom*

Qn.
Identify the relation in the first pair and complete the following

Electro magnetic induction: Moving coil microphone

Mutual Induction : .....

Hint.
transformer

Marks :(1)

Hide Answer

Qn No. 19 *Chapter Name:3. Vydhutha Kanthika Preranom*

Qn.
The number of turns in the primary of a transformer is two times greater than that in the secondary, then

a)identify the type of transformer?

b) If 50V is given to the primary, What will be the voltage obtained in the secondary?

c)If the current in its primary coil is 4A What will be the current in the secondary?

Hint.
a.step up transformer

b. 50 x 2 = 100 V

c. Vp Ip = Vs Is

50 x 4 = 100 x Is

Is = 200 /100 = 2 A

.

Marks :(4)

Hide Answer

Qn No. 20 *Chapter Name:3. Vydhutha Kanthika Preranom*

Qn.
.Find out the relation and fill in the blanks

Generator:	**Armature**	**Induced emf**
Moving coil microphone	**.....**	**Induced emf**

Hint.voice coil

Marks :(1)

Hide Answer

Qn No. 21 *Chapter Name:3. Vydhutha Kanthika Preranom*

Qn.
Select and write down the correct statements regarding a step down transformer from those given below.

a)current is same in primary and secondary.

b)Power is same in primary and secondary.

c)as compared to the secondary coil current Primary coil current is less

d)Current in the secondary is less than the current in the primary.

Hint.
b)Power is same in primary and secondary.

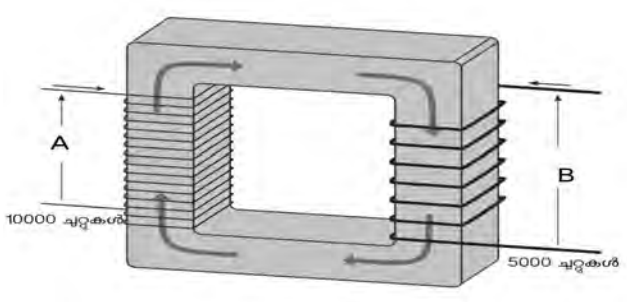
c. Primary current is less than secondary current

Marks :(2)

Hide Answer

Qn No. 22 *Chapter Name:3. Vydhutha Kanthika Preranom*

Qn.



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a) which instrument is shown above? What is its working principle?

b)When 100V AC is applied at A ,the current was 2A. Calculate the Voltage and current received at B.

Hint.
a. transformer, mutual induction

b.Vs/Vp = Ns/Np Vs/100 = 5000/10000 Vs = 50 V

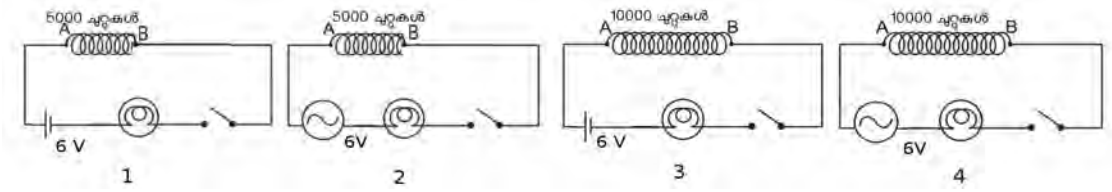
P= V I = 100 x 2 = 200 W , input power=output power

Marks :(4)

Hide Answer

Qn No. 23 ***Chapter Name:3. Vydhutha Kanthika Preranom***

Qn.



The figure shows copper coils of same thickness and different turns arranged in four circuits. If all the bulbs are of same power answer the following questions analysing each figure.

a)If all the circuits are kept on ,which bulb in the circuit glows with least intensity. Justify your answer.

b)If a soft iron core of the same size is inserted in each of the coils, which among the circuits shows most change in the intensity of light..

Hint.
a. circuit 4

Self induction is more if number of tuns id more. So back emf increases.

b. circuit4 , if iron core is inserted self induction again increases

Marks :(3)

Hide Answer

Qn No. 24 ***Chapter Name:3. Vydhutha Kanthika Preranom***

Qn.
Identify the relationship between the terms in the first pair and fill up the second pair accordingly

Generator : armature

moving coil microphone : .....

Hint.
voice coil

Marks :(1)

Hide Answer

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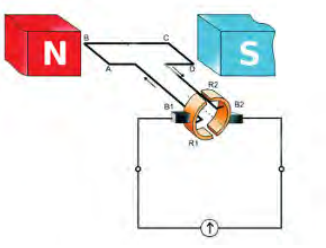
Qn No. 25 *Chapter Name:3. Vydhutha Kanthika Preranom*

Qn.
The figure of a DC generator is given below.



a)What is the structural deference of DC generator and AC generator.

b)Compare the energy change taking place in an electric motor and a DC generator.

c) Though the current produced in a DC generator is AC, DC is received in the output. How?

Hint.
a)Slip rings used in Ac generator and Split rings used in DC generator

b) Motor: Electrical energy changes to mechanical energy

DC generator: Mechanical energy changes to electrical energy

c) the direction of elecric current changes in each half rotation.The brushes connected to external circuit always comes in contact with armature which moves in the same direction. So direction of external current does not change

Marks :(4)

Hide Answer

Qn No. 26 *Chapter Name:3. Vydhutha Kanthika Preranom*

Qn.
identify the relation in the first pair and complete the second pair.

Generator	**Mechanical energy is changed in to electrical energy**
Moving coil microphone	**.....**

Hint.sound energy changes to electrical energy ***Marks :(1)***

Hide Answer

Qn No. 27 *Chapter Name:3. Vydhutha Kanthika Preranom*

Qn.
The current in the primary of a step up transformer that has no energy loss is .....

[More, Less, equal]

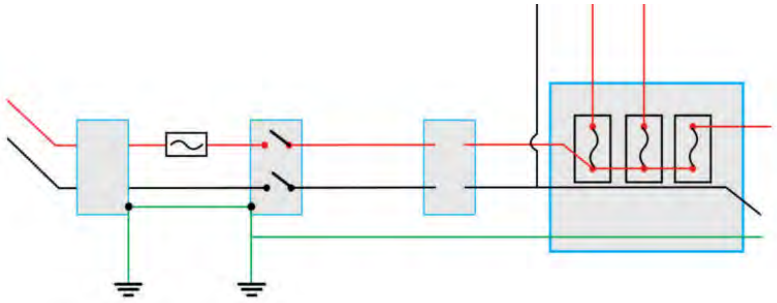
Hint.
More

Marks :(1)

Hide Answer

Qn No. 28 ***Chapter Name:3. Vydhutha Kanthika Preranom***

Qn.
First part of a house hold circuit is shown in the figure



a)Draw the diagram as it is, and label all instruments.

b) Complete the circuits after drawing with the inclusion of two lambs , one fan, one three pin plug for a newly build room.

b) draw the circuit diagram which includes two lambs , one fan and a three pin plug

Hint.
a. Main fuse, watthourmeter, lbeling of instruments

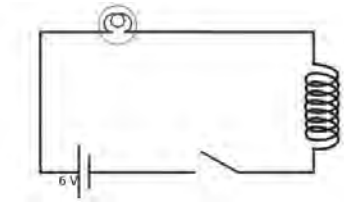
b. copy the figure and introduce instruments

Marks :(4)

Hide Answer

Qn No. 29 ***Chapter Name:3. Vydhutha Kanthika Preranom***

Qn.
Observe the figure and answer the questions given.



a)If 6V AC is used instead of DC in this circuit then brightness of the bulb decreases. Name the phenomenon that causes this decrease of brightness ?

b)What change may occur if a soft iron core is inserted to the coil?

Hint.
Self induction.Defenition of self induction

Marks :(2)

Hide Answer

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