Time Allotted: 03:00:00
Maximum Marks: 80
SECTION - Section - A
SECTION - 1
Q1 Define peristaltic movement? Marks :1

SECTION - 2
Q1 What is pollution? Marks :1

SECTION - Section - B
SECTION - 3
Q1 Marks :2

Show the formation of MgO by the transfer of electrons between the combining atoms. Why are aqueous solutions of ionic compounds able to conduct electricity?

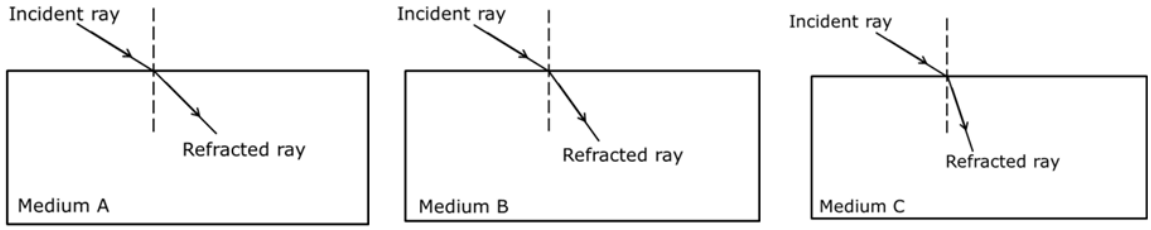
SECTION - 4
Q1 Marks :2

In a below given diagram of longitudinal section of flower, mark the following parts:

a) A part which produces the male gamete.
b) A sticky part which traps the male gamete.
c) A part which transfers a male gamete into the female reproductive organ.
d) A part which develops into a fruit.

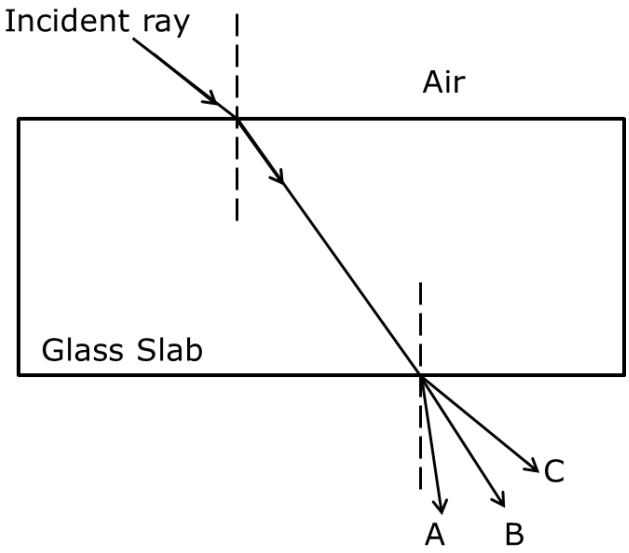
SECTION - 5
Q1 Marks :2

Which medium has maximum refractive index? Justify your answer.



SECTION - 5
Q1 Marks :2

Identify the correct emergent ray. Justify your answer.



SECTION - Section - C

SECTION - 6

Q1 Marks :3

What is observed when a solution of potassium iodide is added to a solution of lead nitrate taken in a test tube? What type of reaction is this? Write a balanced chemical equation to represent the above reaction.

SECTION - 7

Q1 Marks :3

Identify the compound of calcium which is yellowish white powder and is used for disinfecting drinking water. Write its chemical name and formula. How is it manufactured?

SECTION - 7

Q1 Marks :3

Tooth enamel is one of the hardest substances in our body. How does it damage due to eating cakes and sweets. What should we do to prevent it?

SECTION - 8

Q1 Marks :3

Element P belongs to group 2 of modern periodic table and element Q belongs to group 17 of modern periodic table. Write the formula of:

(i) the compound formed by element P and Q.
(ii) the oxide of element P.
(iii) the chloride of element P.

SECTION - 9

Q1 Marks :3

Identify the type of endocrine gland in each of the following:
a) An endocrine gland associated with brain.
b) An endocrine gland associated with kidney.
c) An endocrine gland present only in males.

SECTION - 10

Q1 Marks :3

Observe the image carefully and answer the following questions:

a) Identify the process depicted in the figure.

b) What is the significance of green light in this process?

c) Which cell organelle is called energy converter in this process and why?

SECTION - 11

Q1 Marks :3

A concave mirror of focal length 10 cm is placed at a distance of 35 cm from a wall. How far from the wall an object is placed so that its image formed by the mirror falls on the wall?

SECTION - 11

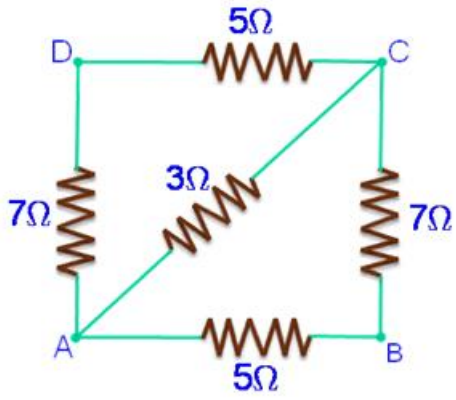
Q1 Marks :3

A combination of lenses is made by putting a convex lens of focal length 15 cm in contact with a concave lens of focal length 20 cm in such a way that they have common principal axis. What will be the resulting nature of the combination and what will be its focal length?

SECTION - 12

Q1 Marks :3

Find the equivalent resistance of the given network of resistors.



SECTION - 13

Q1 Marks

There is a uniform wire of resistance R. A person cuts it into three

equal pieces and joins them in parallel. Find whether the resistance of the combination is more or less than the resistance of the original wire. :3

SECTION - 14

Q1 Differentiate between biodegradable and non-biodegradable pollutants. Classify the following under the above two categories: DDT, paper, cotton cloth, plastics. Marks :3

SECTION - 15

Q1 Marks :3

A garbage collector picked aluminium cans, spoiled bread, polythene bag, disposable syringe, vegetable peels and paper.

Place them in two different coloured bins according to their degradability.

SECTION - 15

Q1 Marks :3

Discuss briefly the main causes of soil erosion.

SECTION - Section - D

SECTION - 16

Q1 Marks :5

a) How will you show experimentally that metals are good conductors of electricity?

b) Describe the extraction of copper metal from its ore copper glance (Cu_2S).

SECTION - 17

Q1 Marks :5

An organic compound (X) is an active ingredient of all alcoholic drinks. It reacts with ethanoic acid to form sweet smelling compound and water.

(a) Identify the compound (X) and write its formula.
(b) Write the name of reaction of compound (X) with acetic acid.
(c) Represent the following by balanced chemical reactions.
(i) Compound (X) reacts with sodium metal.
(ii) Compound (X) reacts with sulphuric acid at 170^oC.
(iii) Compound (X) is heated with alk.$KMnO_4$.

SECTION - 17

Q1 Marks :5

a) What are the two properties of carbon which lead to the huge number of carbon compounds.

b) Explain the nature of the covalent bond using the bond formation in CH_4. Draw the structure also.

SECTION - 18

Q1 (A) “Contraceptive methods prove to be a boon to the society”. Explain the fact.
(B) Write down two differences between tubectomy and vasectomy. Marks :5

SECTION - 19

Q1 What is Darwin’s theory of evolution? Marks :5

SECTION - 19

Q1 Marks :5

Complete the table with appropriate answers:

Traits	Dominant Trait	Recessive Trait
Colour of Pods		
Position of Flower		
Colour of Flower		
Shape of Seed		
Shape of Pod		

SECTION - 20

Q1 Marks :5

(a) What is far point, near point and range of vision?

(b) A Student is unable to see clearly the words written on the blackboard placed at a distance of approximately 4 m from him. Name the defect of vision the boy is suffering from. Explain the method of correcting this defect. Draw ray diagram for the

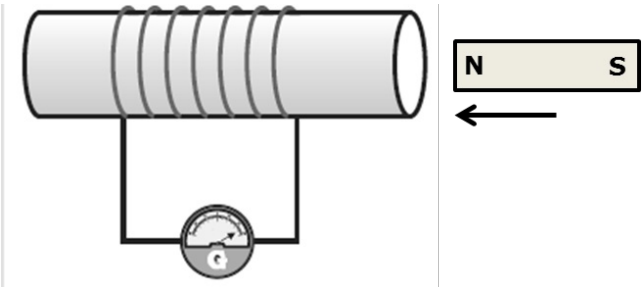
(i) defect of vision and also

(ii) for its correction.

SECTION - 21

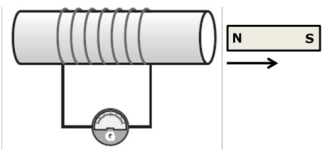
Q1 Marks :5

(i) The given diagram show the deflection in galvanometer needle when a bar magnet is brought close to a coil.

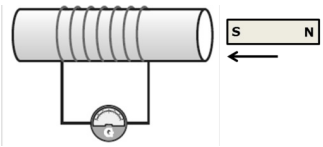


Give the direction of induced current in the given cases by drawing the appropriate direction of galvanometer needle.

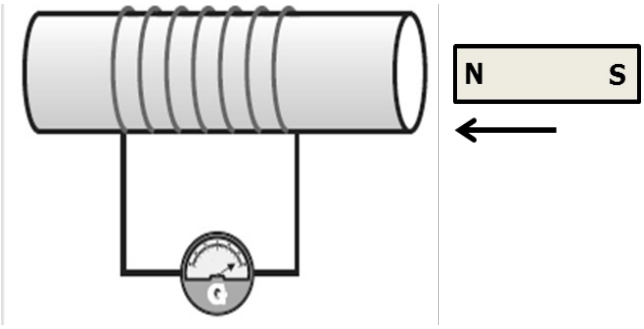
(a)



(b)



(ii) (a) Replace the bar magnet in the given diagram with another coil connected to a circuit in such a way that the direction of deflection in the galvanometer is same when the key is brought to ON position.



(b) State the rule used to find the direction of induced electric current in the coil.

SECTION - 21

Q1 What is the principle behind the working of electric generator? Explain its working with the help of well labeled diagram. Marks :5

SECTION - Section - E

SECTION - 22

Q1 Which gas is usually liberated when an acid reacts with a metal? Illustrate with an example. How will you test for the presence of this gas? Marks :2

SECTION - 22

Q1 When sodium sulphate solution is treated with barium chloride solution, a white precipitate is formed. Name the reaction and also write the balanced chemical reaction. Marks :2

SECTION - 23

Q1 When ethanol reacts with ethanoic acid in the presence of conc. H_2SO_4, a substance with fruity smell is produced. answer the following: Marks :2

a) State the class of compounds to which to which the fruity smeling compounds belong and how are they formed.

b) State the role of conc. H_2SO_4 in the reaction.

SECTION - 24

Q1 Write down two benefits of vegetative propagation. Marks :2

SECTION - 24

Q1 Differentiate between pollination and fertilisation. Marks :2

SECTION - 25

Q1 Write the basic differences between autotrophic and heterotrophic nutrition. Marks :2

SECTION - 26

Q1 An experiment is conducted to observe that how magnitude of electric current flowing through a conductor varies with the variation in potential difference applied across the ends of the conductor. For the experiment an ammeter and a voltmeter are connected in a circuit in a suitable manner. Can the positions of the ammeter and Marks :2

the voltmeter be interchanged during the experiment?

SECTION - 27

Q1 Marks :2

While performing an experiment for observing refraction of light through a rectangular glass slab, a student observed that ray of light incidents at an angle of 30^{o} with the normal at one of the faces of the glass slab.

(a) What will be the angle of emergence?

(b) Draw a labelled diagram to show the path of the incident ray.