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N. PODAR SCHOOL

CHANGEMAKER SCHOOLS

TEST SERIES 1 (2018 - 2019)

DATE : 15.12.2018

TIME ALLOWED: 3 Hours

MAXIMUM MARKS : 90

S : X

ECT : SCIENCE

al Instructions:

Questions carrying two marks must be answered in 30 -40 words each.
Questions carrying three marks must be answered in 40-50 words each.
Questions carrying five marks must be answered in 50-60 words each.
All questions are compulsory.

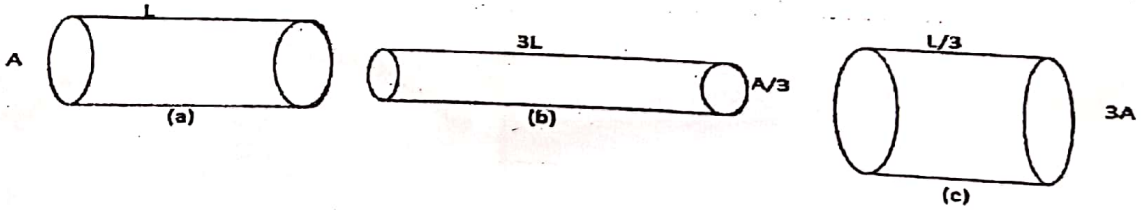
PHYSICS

Mention the expression and SI unit of electrical resistivity.
In series electric circuit comprising a resistor made up of a metallic wire, the ammeter reads 100 mA. If the length of the wire is doubled, how will the current in the circuit change? Justify your answer. **2**

With the help of a labeled diagram, explain the distribution of magnetic field due to current through a circular loop. **2**

You have three lenses L1, L2 and L3 of powers +10D, +5D and -10D respectively. State the nature and focal length of each lens. Explain which of the three lenses will form a virtual and magnified image of an object placed at 15 cm from the lens. **2**

The figure below shows three cylindrical copper conductors along with their face areas and lengths. Compare the resistance and the resistivity of the three conductors. Justify your answer. **3**



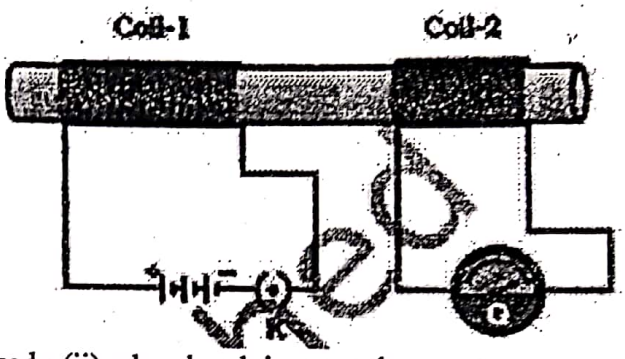
The image of an object formed by a mirror is real, inverted and is of magnification -1. If the image is at the distance of 30 cm from the mirror, **3**
Where is the object placed?
Find the position of the image if the object is now moved 20 cm towards the mirror.
What is the nature of the image obtained? Justify your answer with the help of a ray diagram.

Write Joule's law of heating.
Two lamps, one rated 100 W; 220V, and the other 60 W; 220V, are connected in parallel to electric mains supply. Find the current drawn by the two bulbs from the line, if the supply voltage is 220V. **3**

What is meant by overloading of an electrical circuit?
Explain two possible causes due to which overloading may occur in household circuit. **3**
Explain one precaution that should be taken to avoid the overloading of domestic electric circuit.

8 a) With the help of an activity, explain the method of inducing electric current in a coil with a moving magnet. State the rule used to find the direction of electric current thus generated in the coil.

b) Two circular coils, coil-1 and coil-2 are kept close to each other as shown in the diagram. Coil-1 is connected to a battery and key and coil-2 with a galvanometer. State your observation in the galvanometer:



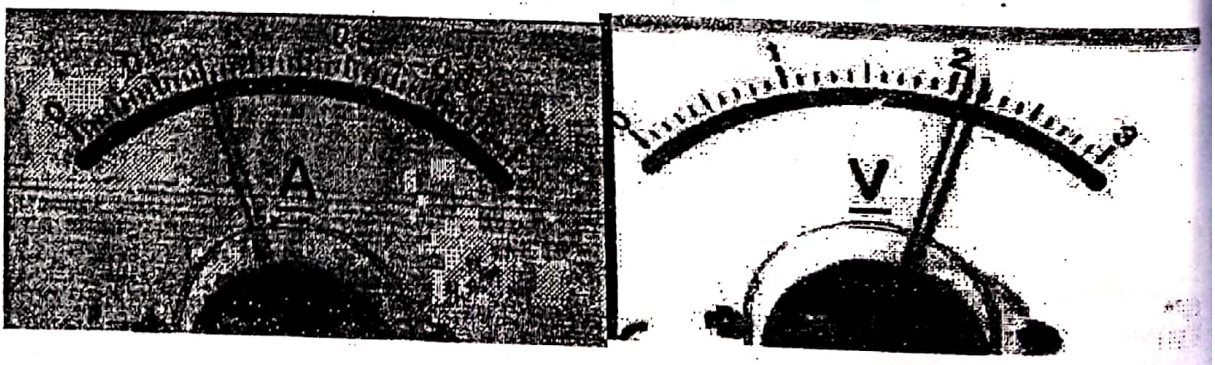
(i) When key k is closed ; (ii) when key k is opened;
Give reason for your observations.

9 a) State Fleming's Left Hand Rule.

b) Write the principle of working of an electric generator.

c) Explain the function of the following parts of an electric motor.
(i) Armature (ii) Brushes (iii) Split ring

10 The current flowing through a resistor connected in an electrical circuit and the potential difference developed across its ends are shown in the given ammeter and voltmeter. Find the least count of the voltmeter and ammeter. What is the voltage and the current across the given resistor?



CHEMISTRY

1 How is magnesium chloride formed by the transfer of electrons? Why does the solution of magnesium chloride conduct electricity?

2 a) Which metal from the following can displace zinc from zinc sulphate solution?
lead, copper , magnesium , silver
Write the equations for the chemical reaction involved.

b) Differentiate between metals and non metals based on their chemical properties.

An element 'X' placed in 2nd group and 4th period of the periodic table burns in the presence of oxygen to form a basic oxide. 2

a) Identify the element. Write its electronic configuration
b) Write a balanced equation for the reaction when this oxide is dissolved in water.

Give reason for the following: 3

a) Zinc oxide is considered as an amphoteric oxide.
b) Lemon is used for restoring the shine of tarnished copper vessels.
c) Most of the metals do not give hydrogen while reacting with nitric acid.

Three elements 'X', 'Y' and 'Z' have atomic numbers 7, 8 and 9 respectively. 3

a) State their positions (Group number and period number both) in the Modern Periodic Table.
b) Arrange these elements in the decreasing order of their atomic radii.
c) Write the formula of the compound formed when 'X' combines with 'Z'.

The modern periodic table has been evolved through the early attempts of Dobereiner, Newland and Mendeleev. List one advantage and one limitation of all the three attempts. 3

Differentiate between the arrangement of elements in Mendeleev's periodic table and Modern periodic table. 3

Explain giving justification the trends in the following properties of elements on moving from left to right in a period, in the modern periodic table. 5

a) Valency
b) Atomic radius
c) Metallic character
d) Nature of oxide
e) Electronegative character

How is copper extracted from its sulphide ore? Give diagrammatic representation of electrolytic refining of copper. 5

a) Arrange the metals- iron, magnesium, zinc and copper in the increasing order of their reactivity. 2
b) What will be the two observations made by the student when iron fillings are added to copper sulphate solution?

BIOLOGY

a) Why is the flow of signals in a synapse from axonal end of one neuron to dendritic end of another neuron, but not the reverse? 2
b) Enlist two situations/conditions in which signals won't be received/conducted.

Describe briefly any two ways in which individuals with a particular trait may increase in a population. 2

Why are the Arabari forests of Bengal known to be a good example of conserved forest? 2

4 Draw a neat diagram of human brain and label the following parts:
i) associated with body balance and posture.
ii) controls salivation
iii) releases hormone
iv) protects brain

5 Different species use different strategies to determine sex of a newborn individual. Explain th statement by giving examples for each category.

6 Name any three categories of people who depend on the forest resources. Mention the maj needs of each category.

7 a) State any four advantages of storing water as ground water.
b) State any two problems associated with the construction of dams.

8 a) Name any two directional movements in plants. Explain any one with the help of an activity
b) An endocrine gland 'P' is located below the stomach in the human body. The gland P secre a hormone 'H'. The deficiency of hormone H in the body affects the sugar level. Name th disease 'D' caused by it.

9 X, Y and Z are three animals. The animal X can fly, but animal Y can only run/crawl ground or walls. The forelimbs of animals X and Y have the same basic design, but they a used for different purposes such as flying, running respectively. The animal Z became ex a long time ago. The study of fossils Z tells us that it had some features like those of X some like those of Y. In fact, Z is said to be a connecting link in the evolutionary chain and Y.

a) What would animal Z be?
b) Name the animal groups to which X and Y belong.
c) What name is given to the forelimbs like those of X and Y, which have the same basic desig but different functions?
d) Name one feature in which Z resembled X.
e) Name one feature in which Z resembled Y.
f) What is the correct evolutionary chain involving X, Y and Z. Why?

10 A blue colour flower plant denoted as BB is cross bred with that of white bb
a) State the colour of flower you would expect in the F1 generation. Why?
b) State the expected ratio of BB:Bb.
c) What is the name given to such type of a cross?