

B.Sc. CHEMISTRY
SECOND SEMESTER
MATERIAL SCIENCE & APPLICATIONS
SVS – 201

**SET
A**

[USE OMR FOR OBJECTIVE PART]

Duration: 1:30 hrs.

Full Marks: 35

Time: 15mins.

(Objective)

Marks: 10

Choose the correct answer from the following:

1X10=10

- Which one of the following is NOT a primary macronutrient for plant?
a. Nitrogen
b. Phosphorous
c. Potassium
d. Calcium
- In the synthesis of potassium sulphate, the proportion of sulphuric acid and potassium chloride is taken in
a. 3:1
b. 1:3
c. 2:1
d. 1:2
- The chemical formula of monoammonium phosphate is
a. $\text{NH}_4\text{H}_2\text{PO}_4$
b. $(\text{NH}_4)_2\text{HPO}_4$
c. NH_4HPO_4
d. None of these
- What is the main difference between dyes and pigments?
a. Dyes are soluble, while pigments are insoluble.
b. Dyes are organic compounds, while pigments are inorganic compounds.
c. Dyes are used in paints, while pigments are used in textiles.
d. Dyes have a wider range of colors than pigments.
- Which of the following substances is primarily used to color fabrics?
a. Dyes
b. Paints
c. Pigments
d. Varnishes
- Which type of paint uses water as a solvent?
a. Oil-based paint
b. Acrylic paint
c. Enamel paint
d. Epoxy paint
- Which type of paint requires a longer drying time due to its oil-based composition?
a. Watercolor paint
b. Acrylic paint
c. Gouache paint
d. Oil paint
- Which of the following is an example of primary batteries?
a. Leclanche cell
b. Mercury cell
c. Both (a) and (b)
d. None of the above

9. Which of the secondary battery is non polluting
- a. Ni-Cd Battery
 - b. Pb-Storage battery
 - c. Both (a) and (b)
 - d. None of the above
10. Choose the correct statement
- a. Primary cells are reusable
 - b. Secondary cells are rechargeable
 - c. Both (a) an (b)
 - d. None of the above

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(Descriptive)

Time :1 hr. 15 mins.

Marks:25

[Answer question no.1 & any two (2) from the rest]

1. a. What are two major types of ammonium phosphate fertilizers? Write down their molecular formula. 2+2+1
=5
 - b. Define Fuel cell with examples.
 - c. Write one application of Electroplating?

2. a. Write the chemical reactions involve in the synthesis of potassium sulphate from sulphuric acid and potassium chloride. 1+2+2+2
+3=10
 - b. Write the preparation method of potassium chloride from mineral carnallite.
 - c. Briefly explain the ammonium nitrate preparation method.
 - d. Write down the reaction involved in the synthesis of single and triple super phosphate fertilizer?
 - e. Briefly describe urea manufacturing process.

3. a. What are fertilizers? What are three primary macronutrients for plants and how they help for plant growth? 3+4+3
=10
 - b. What is Paint and what are the various components of Paints? Write about Binder and Resins?
 - c. Write the chemical reactions involved in mercury cell and mention its uses.

4. a. What are the key features and properties of fire retardant paint? 2+2+3+1
+2=10
 - b. What are eco-friendly paints? Give one benefit of eco-friendly paint.
 - c. Write about major surface coatings with examples?
 - d. What is Heat- retardant paint?
 - e. What is a dye? Explain

5. a. Define secondary batteries and mention its uses.
b. Explain the chemical reactions involved in lead storage battery.
c. Define Primary batteries with examples. Write the chemical reaction involved in Lechlanche cell.

2+4+4
=10

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