

STELLA MARIS COLLEGE (AUTONOMOUS) CHENNAI 600 086
(For candidates admitted from the academic year 2015-16 & thereafter)

SUBJECT CODE: 15CH/AE/AP45

B.Sc. DEGREE EXAMINATION, APRIL 2019
FOURTH SEMESTER

COURSE : ALLIED ELECTIVE
PAPER : APPLIED CHEMISTRY
TIME : 3 HOURS **MAX. MARKS : 100**

SECTION – A
ANSWER ALL THE QUESTIONS **(30x1=30)**

I. Choose the correct answer:

1. Identify the primary standard among the following
a. NaOH b. HCl c. $K_2Cr_2O_7$ d. H_2SO_4
2. Which among the following is a dimensionless quantity?
a. Normality b. specific gravity c. molality d. all of these
3. Which of the following concentration unit is temperature independent?
a. Molality b. molarity c. normality d. none of these
4. Identify the top-down approach for the preparation of nanomaterials from the following
a. Gas phase agglomeration b. mechanical grinding
c. Molecular self assembly d. all of these
5. _____ is the principal factor which causes the properties of nanomaterials to differ significantly from other materials.
a. size distribution b. specific surface feature
c. quantum size effects d. all of these
6. Identify the natural polymer from the following
a. polyethylene b. PVC c. Silicones d. cellulose
7. _____ is an antibiotic.
a. Morphine b. Aspirin c. Penicillin d. Phenacetin
8. Which among the following is an artificial sweetening agent?
a. Saccharin b. $CHCl_3$ c. Halothane d. Chloramphenicol
9. The extent of adsorption of a gas on a solid depends on
a. nature of gas b. pressure of gas c. temperature d. all of these

10. Identify the incorrect statement with regard to a catalyst.
- It accelerates the rate of reaction
 - It alters the enthalpy of reaction
 - It reduces the activation energy of reaction
 - It affects both forward and backward reaction to the same extent.

II. Fill in the blanks:

- The concentration of extremely dilute solutions can be expressed as _____.
- The number of atoms of silver present in 5 moles of silver is _____ .
- The normality of 0.1 M H_2SO_4 is _____.
- In TEM, the _____ electrons are used to create an image of the sample.
- The interaction between a sharp probe and a sample are used for imaging in _____ technique.
- The extent of physisorption of a gas on a solid _____ with increase in temperature.
- Formation of ammonia from nitrogen and hydrogen by Haber's process is an example for _____ catalysis.
- _____ is the process of removing the skin from the animal.
- An example for Non – Narcotic analgesic is _____.
- _____ is the active ingredient present in Dettol preparations.

III. State whether true or false:

- Crystals of potassium hydrogen phthalate is an example for a primary standard.
- Gelatin is a natural nano material.
- Enzyme catalysts are highly specific in their catalytic action.
- Malachite green is an azo dye.
- Formation of self-assembled monolayers requires the application of external pressure.

IV. Answer in a line or two:

- What are buffer solutions?
- Mention any two characteristic properties of objects in the nano scale.
- What are zeolites?
- Which substance is used as a tanning agent in vegetable tanning?
- How many millimoles of hydrogen atoms are present in 0.2 g of hydrogen gas?

