

Code No. : 7160

Sub. Code : PCHE 21

M.Sc. (CBCS) DEGREE EXAMINATION,
APRIL 2019.

Second Semester

Chemistry – Elective

ADVANCED TOPICS IN CHEMISTRY - II

(For those who joined in July 2016 onwards)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. In chemsketch _____ mean press and hold down the left mouse button while you move the mouse
- (a) click
(b) double-click
(c) drag
(d) right-click

2. In chemdraw optional toolbars are divided into _____ basic groups
- (a) 2 (b) 3
(c) 4 (d) 5
3. The electrical conductivity of the nanocomposites embedded with insulating nanoparticles _____
- (a) decreases rapidly
(b) increases rapidly
(c) decreases slowly
(d) increases slowly
4. In nanocomposites the matrix phase is in the form of _____
- (a) fibers (b) sheets
(c) particles (d) none of the above
5. Polymer crystallinity is strongly affected by the _____ of substituent groups on the chains
- (a) nature (b) steric requirements
(c) position (d) type

6. Thermoplastics have a _____ T_g and are therefore _____ at room temperature
(a) low, soft (b) high, hard
(c) high, soft (d) low, hard
7. Diseases _____ are commonly transmitted by direct oral contact
(a) Herpes simplex virus and mononucleosis
(b) Polio and rotavirus
(c) Herpes simplex virus and polio
(d) Mononucleosis and polio
8. Diseases that can be transmitted by direct contact are called _____
(a) infectious (b) contagious
(c) contagious (d) infections
9. The enzyme amylase, found in the human digestive tract, catalyzes only the hydrolysis of starch to yield _____
(a) fructose (b) cellulose
(c) glucose (d) sucrose
10. A cofactor can be either an inorganic ion or a small organic molecule called a _____
(a) apoenzyme (b) holoenzyme
(c) coenzyme (d) hypoenzyme

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).

Each answer should not exceed 250 words.

11. (a) Write a brief account of cartridge analysis.
Or
(b) Write notes on chem sketch.
12. (a) Describe briefly on polystyrene / clay nano composites.
Or
(b) Write a note on polyamide / clay nano composites.
13. (a) Narrate the structure of acrylonitrile butadiene styrene.
Or
(b) Describe the applications of polyphenylene sulphide.
14. (a) Write a brief account of chemical and process development of drugs.
Or
(b) Write an account of toxicology.

15. (a) Describe the characteristics of enzymes.

Or

- (b) Write short notes on citric acid cycle.

PART C — ($5 \times 8 = 40$ marks)

Answer ALL questions, choosing either (a) or (b).

Each answer should not exceed 600 words.

16. (a) Give brief account on world wide used and chemical databases on internet.

Or

- (b) Write notes on:

- (i) Forensic serology
- (ii) Drug analysis

17. (a) Write in detail the properties and applications of bio-nanocomposites.

Or

- (b) (i) Discuss the applications of nanomaterials in catalysis.
- (ii) Explain the synthesis of nylon 6-clay hybrid.

18. (a) Describe the synthetic route, structure and applications of poly ethylene terephthalate.

Or

- (b) Discuss the synthesis and applications of ion exchange resins.

19. (a) Write notes on:

- (i) Bio assays and leads
- (ii) Hansch analysis

Or

- (b) Discuss the following:

- (i) Quantitative structure activity relationships.
- (ii) Patent protection.

20. (a) Give an account of the following:

- (i) Biological energy
- (ii) Biological oxidation.

Or

- (b) (i) Write an account of calixarenes as enzyme model.
- (ii) Write briefly on lipid metabolism.