(6 pages) **Reg. No. :** .....

Code No. : 6879 **Sub. Code : PCHE 21**

M.Sc. (CBCS) DEGREE EXAMINATION, APRIL 2021.

Second Semester

Chemistry

Elective — ADVANCED TOPICS IN CHEMISTRY — II

(For those who joined in July 2017 onwards)

Time : Three hours Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. For comparison of bullets, following microscope is used for identification

   (a) Polarizing microscope

   (b) Neutron microscope

   (c) Comparison microscope

   (d) Nuclear magnetic resonance

2. The control unit of a computer

   (a) Perform arithmetic and logical operations on the data

   (b) Controls the operation of output devices

   (c) Is a device for manually operating the computer

   (d) Directs the other units of the computer

3. One nanometer is

   (a) One billionth of a meter

   (b) One trillionth of a meter

   (c) One billionth of a centimeter

   (d) One billionth of a millimeter

4. The process of synthesis of nano powders is

   (a) Sol-gel process

   (b) Electro deposition

   (c) Sputtering technique

   (d) All are correct

5. Which of the following is a chain growth polymer?

   (a) Nucleic acid (b) Polystyrene

   (c) Protein (d) Starch

6. Which of the following is a polyamide?

(a) Teflon (b) Nylon-6,6

(c) Terylene (d) Bakelite

7. Which of the following is not a viral disease?

(a) Small pox (b) Typhoid

(c) Encephalitis (d) Rabies

8. The disease not caused by a bacteria is

(a) Pneumonia (b) Meningitis

(c) Syphilis (d) Poliomyelitis

9. ATP is (stands for) ————————.

(a) An enzyme which brings about oxidation

(b) A hormone

(c) A protein

(d) A molecule which contain high phosphate bonds (adenosine triphosphate)

10. Importance of Krebs's cycle is ————————.

(a) Production amino acids

(b) Production of vitamins

(c) Production ATP molecules through oxidative phosphorylation

(d) To encourage glycolysis

PART B — (5 × 5 = 25 marks)

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

Each answer should not exceed 250 words.

11. (a) What is meant by forensic science? Explain finger printing analysis.

Or

(b) Explain the molecular modeling simulation and animation.

12. (a) Write the applications of nanomaterials in catalysis.

Or

(b) Write a note on polyamide nano composites.

13. (a) Write a note on ion exchange resins.

Or

(b) Give any three applications of engineering plastics.

14. (a) Write a short note on bioassay in medicinal chemistry.

Or

(b) Explain chemical and process development of drugs.

15. (a) Write briefly about Chymotrypsin.

Or

(b) Write notes on urea cycle.

PART C — (5 × 8 = 40 marks)

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

Each answer should not exceed 600 words.

16. (a) Briefly discuss about the forensic serology, hair and fiber analysis.

Or

(b) Describe the chemsketch and chemdraw.

17. (a) Write note on :

(i) Organic transformations and fuel cells

(ii) Environmental applications.

Or

(b) Write the synthesis, characterization and properties of Nylon 6.

18. (a) Explain the synthetic route, structure and applications of any two engineering plastics.

Or

(b) Write note on :

(i) Poly phenylene sulphide

(ii) Poly amides.

19. (a) Write a note on the identification of diseases and corresponding targets.

Or

(b) Briefly explain about the preclinical trials of Toxicology and Pharmacology.

20. (a) Write the biological energy-ATP. NADH. NADPH, $FADH_2$ as electron carriers.

Or

(b) Explain the link between glycolysis and citric acid cycle.

———————