Register Number.....

B.E. DEGREE EXAMINATIONS: OCTOBER / NOVEMBER 2008

Second Semester

U07CY201: Chemistry II

(Common to Electrical and Electronics Engineering & Electronics and Instrumentation Engineering)

Time: 3 Hours **Maximum: 100 marks**

Answer all questions: -

PART – A (20 X 2 = 20 Marks)

1. In a photo chemical reaction:

   a) $\Delta G = +ve$ b) $\Delta G = -ve$ c) $\Delta G = 0$ d) $\Delta G = \Delta H - T\Delta S$

2. According to Einstein's Law, one quantum of energy is equal to:

   a) $E = hv$ b) $E = Nhv$ c) $E = Nhcv$ d) $E = Nhc / \lambda$.

3. For the photo chemical decompost on of HI the quantum efficiency is equal to:

   a) 2 b) 0.1 c) 10^5 d) 1

4. The example for photo sensitized reaction is:

   a) Photo synthesis b) Decomposition of HI

   c) Formation of HBr d) Formation of HCl

5. PVC is:

   a) inflammable b) non-inflammable

   c) a thermoset d) an elastomer.

6. Terylene is a:

   a) polyamide b) polyester c) polyglycol d) polycarbonate.

7. Sulphur is used particularly in:

   a) manufacture of Buna-S b) compounding of plastics

   c) vulcanization of raw rubber d) corrosion control.

8. A plastic which can be softened on heating and hardened on cooling is called:

   a) thermoelastic b) thermoplastic c) thermosetting d) thermite.

9. For corrosion of iron to take place:

   a) presence of moisture is sufficient

   b) presence of both moisture and oxygen is essential

   c) hydrogen is required

   d) a strong acid is necessary.

10. When a burried pipeline is protected from corrosion by connecting to Mg block, it is called:

a) impressed voltage protection
b) sacrificial cathodic protection
c) sacrificial anodic protection
d) any of these.

11. In electrochemical corrosion:

a) anode undergoes oxidation
b) cathode undergoes oxidation
c) both undergo oxidation
d) both undergo reduction

12. In waterline corrosion, the maximum amount of corrosion takes place:

a) along a line just above the level of the water miniscus
b) along a line at the level of the water miniscus
c) along a line just below the level of the water miniscus
d) at the bottom of the vessel.

13. The function of moderator in reactor is to:

a) act as fuel
b) slow down neutrons
c) act as coolant
d) reflect back neutrons.

14. Nuclear fusion occurs in:

a) atomic bomb
b) hydrogen bomb
c) neutron bomb
d) none of these.

15. The electrode potential is the tendency of metal:

a) to gain electrons
b) to lose electrons
c) either to lose or gain electrons
d) to gain protons.

16. A galvanic cell converts:

a) electrical energy into chemical energy
b) chemical energy into electrical energy
c) electrical energy into heat energy
d) chemical energy into heat energy.

17. Limitation of fuel cells is:

a) low maintenance cost
b) low noise pollution
c) low thermal pollution
d) high initial cost.

18. In Lead acid accumulator the anode is:

a) spongy lead
b) lead antimony alloy
c) lead alloy coated with lead dioxide
d) carbon

19. 1 nm is equal to:

a) 1×10^{-9}m
b) 1×10^{-7}m
c) 1×10^{-8}m
d) 1×10^{-7}cm

20. Bauxite ore is:

a) $Al_2O_3 . 2H_2O$
b) Al_2O_3
c) $Al_2(SO_4)_3$
d) $Al(OH)_2$

PART – B (5 X 12 = 60 Marks)

21. a) i) What is quantum efficiency and how is it determined? (6)

ii) State and explain Lambert's Law and Beer's Law. (6)

(OR)

21. b) Write a detailed account on fluorescence and phosphorescence. (12)

22. a) i) Explain the process of vulcanization of rubber. (6)

ii) Give the preparation and properties of nylon-6. (6)

(OR)

22. b) Explain the preparation, properties and uses of PVC, Phenol-formaldehyde and Urea formaldehyde resins. (12)

23. a) i) Explain the various factors affecting the rate of corrosion. (6)

ii) Explain differential aeration corrosion by giving suitable example. (6)

(OR)

23. b) i) Explain electrochemical theory of corrosion. (6)

ii) How do design and material selection help to control metallic corrosion? Explain. (6)

24. a) i) With an example, explain the process of nuclear fission. (6)

ii) What are the function of D_2O and Cd steel rods in a nuclear reactors? Explain. (6)

(OR)

24. b) i) Discuss the principle involved in the working of a hydrogen-oxygen fuel cell. (6)

ii) Write about Lithium cells with special reference to all reactions and application. (6)

25. a) i) Explain how copper is purified by electro refining? (6)

ii) What is meant by electro winning process? (6)

(OR)

25. b) Describe with neat sketch, how the nano particles are prepared by employing the topdown methods. (12)

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