Reg.No. \_\_\_\_\_\_\_\_\_\_\_\_



**UNIVERSITY**

(Karunya Institute of Technology & Sciences)

(Declared as Deemed-to-be University under Sec.3 of the UGC Act, 1956)

**End Semester Examination – Nov/Dec – 2016**

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|  |  | **Semester :** | **2016-17 ODD** |
| **Code :** | **16CH1002** | **Duration :** | **3hrs** |
| **Sub. Name :** | **CHEMISTRY FOR ENGINEERS** | **Max. marks :** | **100** |

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| **Q. No.** | **Questions** | | | | **Course outcome** | **Marks** |
| **PART-A (40X1=40 MULTIPLE CHOICE QUESTIONS)** | | | | | | |
| 1. | Temporary hardness in water can be removed by \_\_\_\_\_\_\_\_\_\_ | | | |  |  |
|  | a. coagulation | b.filteration | c.heating | d.boiling | CO1 | (1) |
| 2. | Ethylene diamine tetra acetic acid ia a\_\_\_\_\_\_\_\_\_\_\_\_\_ agent | | | |  |  |
|  | a. neutralizing agent | b.oxidising agent | c. reducing agent | d. complexing agent | CO1 | (1) |
| 3. | Name the substance that could destroy the zeolite bed. | | | | CO1 |  |
|  | a. Bicarbonate ions | b.Ca, Mg ions | c. Mineral acids | d. Alkaline substances |  | (1) |
| 4. | The bond formed between two ions by *transfer*  of electrons is \_\_\_\_\_\_\_\_\_\_\_\_ | | | | CO1 |  |
|  | a. hydrogen bond | b. co-ordinate bond | c. ionic bond | d.covalent bond |  | (1) |
| 5. | Liquid chlorine is an example for\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | | | | CO1 |  |
|  | a. coagulant | b. disinfectant | c.complexing agent | d. neutralizing sgent |  | (1) |
| 6. | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is an example for cation exchange resin. | | | | CO1 |  |
|  | a. nitrated divinyl benzene copolymer | b. sulphonated styrene divinyl benzene copolymer | c. sulphonated divinyl benzene copolymer | d. nitrated styrene divinyl benzene copolymer |  | (1) |
| 7. | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is an example for soft scale | | | | CO1 |  |
|  | a. MgCl2 | b.CaSO4 | c. Ca(HCO3)2 | d. Silica |  | (1) |
| 8. | The energy used for breaking the bond is maximum in \_\_\_\_\_\_\_\_\_\_\_\_ bond | | | | CO1 |  |
|  | a. covalent bond | b. co-ordinate bond | c. ionic bond | d. hydrogen bond |  | (1) |
| 9. | The number of reactive sites present in a polymer is called as \_\_\_\_\_\_\_\_\_\_\_\_\_\_ | | | | CO1 |  |
|  | a. functionality | b. degree of polymerisation | c. tacticity | d. initiation |  | (1) |
| 10. | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is an example for addition polymer | | | | CO1 |  |
|  | a. Polyethene | b. Nylon | c. Bakelit | d. Polyester |  | (1) |
| 11. | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is prepared by mixing conducting fillers with insulating polymers. | | | | CO1 |  |
|  | a. Intrinsically conducting polymers | b. Extrinsically conducting polymers | c. Ionically conducting Polymers | d.Insulating Polymers |  | (1) |
| 12. | An example for synthetic biodegradable polymer is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | | | | CO1 |  |
|  | a. Polypropylene | b. Poly lactic acid | c. Silicones | d.Epoxy resins |  | (1) |
| 13. | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_- is an example for bi functional monomer | | | | CO1 |  |
|  | a.Methanol | b.Ethane | c. Ethylene | d.Methane |  | (1) |
| 14. | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is used in dental restoratives. | | | | CO1 |  |
|  | a.Epoxy resin | b.Silicone | c.Polymethyl methacrylate | d.Poly vinyl alchohol |  | (1) |
| 15. | Catalyst used in the preparation of polyethylene is \_\_\_\_\_\_\_\_\_\_\_ | | | | CO1 |  |
|  | a.chlorine | b.hydrogen | c.nitrogen | d.oxygen |  | (1) |
| 16. | Bakelite is a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ plastic. | | | | CO1 |  |
|  | a.recyclable | b.biodegradable | c.thermo | d.thermosetting |  | (1) |
| 17. | The example for poly aromatic hydrocarbonis---------- | | | | CO1 |  |
|  | a. acenaphthene | b. acetophenone | c.anthraniline | d.acetone |  | (1) |
| 18. | The maximum limit of permitted synthetic food color is------ppm | | | | CO1 |  |
|  | a. 50 | b.120 | c.100 | d.80 |  | (1) |
| 19. | The following is the example of natural food color | | | | CO1 |  |
|  | a. tartarzine | b.riboflavin | c.sunset yellow | d.carmimine |  | (1) |
| 20. | The food item in which mineral acid is present as adulterant is -------- | | | | CO1 |  |
|  | a. soft drinks | b.vegetable oil | c.vinegar | d.milk |  | (1) |

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| 21. | Which of the following is not the antioxidant? | | | | CO1 |  |
|  | a. vitamin E | b.peroxidases | c.acetone | d.vitamin C |  | (1) |
| 22. | What is the chemical name of ajinomoto ? | | | | CO1 |  |
|  | a.monosodium glutamate | b.acenaphthene | c.chrysene | d.anthracene |  | (1) |
| 23. | Calcium propionate is used as --------- | | | | CO1 |  |
|  | a. food color | b.food preservative | c.oxygen absorber | d.antioxidant |  | (1) |
| 24. | The adulterant present in turmeric powder is--------- | | | | CO1 |  |
|  | a. brick powder | b.boric acid | c.lead chromate | d.urea |  | (1) |
| 25. | What is the oxidation potential of zinc electrode? | | | | CO2 |  |
|  | a. +0.34V | b.0.76V | c.-0.76V | d.-0.34V |  | (1) |
| 26. | Which metal occupies first position in electrochemical series? | | | | CO2 |  |
|  | a. copper | b. Lithium | c.zinc | d.lithium |  | (1) |
| 27. | The emf of Daniel cell is -------- | | | | CO2 |  |
|  | a. 2V | b.1.1V | c.1.5V | d.2.1V |  | (1) |
| 28. | The reaction taken place at anode is------ | | | | CO2 |  |
|  | a.oxidation | b.reduction | c.hydrolysis | d.neutralisation |  | (1) |
| 29. | Laclanche cell is an example for----------battery | | | | CO2 |  |
|  | a. secondary | b. fuelcell | c.primary | d.fuel |  | (1) |
| 30. | Antimony oxide is used as ----------------- | | | | CO2 |  |
|  | a. cathodic inhibitor | b. anodic inhibitor | c.deaerating agent | d.neutralizing agent |  | (1) |
| 31. | The metal undergoing hydrogen evolution type cathodic mechanism is----------------- | | | | CO2 |  |
|  | a. silver | b. copper | c.iron | d.platinum |  | (1) |
| 32. | Yellow rust is represented as ------------------- | | | | CO2 |  |
|  | a. Fe2O3 | b. 2Fe2O3.6H2O | c. Fe(OH)2 | d. Fe3O4 |  | (1) |
| 33. | The size of nanoparticles is between \_\_\_\_\_ nm. | | | | CO3 |  |
|  | a. 1--100 | b.1---200 | c.500----1000 | d.50--100 |  | (1) |
| 34. | Which ratio decides the efficiency of nanosubstances? | | | | CO3 |  |
|  | a. Weight/volume | b. Surface area/volume | c.volume/density | d.pressure/ volume |  | (1) |
| 35. | An example for two dimensional nanomaterial is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | | | | CO3 |  |
|  | a.nanoparticles | b.nanosheets | c. quantum dots | d.nano rods |  | (1) |
| 36. | Optical properties of nano materials find applictaions in \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | | | | CO3 |  |
|  | a. tubelights | b.lasers | c.microscopes | d.glass wares |  | (1) |
| 37. | ­­­­­­­­­­­­­­­­\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ approach refers to slicing or successive cutting of a bulk material to get nano sized particle. | | | | CO3 |  |
|  | a.topdown | b.bottom up | c. solgel | d.condensation |  | (1) |
| 38. | Nanochips are nanometer sized \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | | | | CO3 |  |
|  | a. electrical circiuts | b. sensors | c.detectors | d. batteries |  | (1) |
| 39. | 1 nm = \_\_\_\_\_ m | | | | CO3 |  |
|  | a. 10-9 | b. 10-7 | c. 10-10 | d. 10-8 |  | (1) |
| 40. | Which method is adopted for synthesizing nanomaterials? | | | | CO3 |  |
|  | a. electrolysis | b.sol-gel method | c.condensation | d.precipitation |  | (1) |

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| **PART B(8 X 5 = 40 MARKS) (ANSWER ANY EIGHT)** | | | |
| 41. | What is a hydrogen bond? What are it’s types? Give examples. | CO1 | (5) |
| 42. | Calculate total, permanent and temporary hardness of a sample water containing  Mg(HCO3)2 = 7.3 mg/l CaCl2 = 111mg/l MgSO4 = 120 mg/l | CO1 | (5) |
| 43. | Discuss the role of any five ingredients used in moulding of plastics. | CO1 | (5) |
| 44. | Write the preparation and uses of polyvinylchloride. | CO1 | (5) |
| 45. | Explain the role of fat in ice cream. | CO1 | (5) |
| 46. | How will you detect the adulterants present in black pepper and chilly powder? | CO1 | (5) |
| 47. | Explain the working of lead acid battery during discharging. | CO2 | (5) |
| 48. | How is corrosion controlled by sacrificial anodic protection method? | CO2 | (5) |
| 49. | Write note on nano pollution. | CO3 | (5) |
| 50. | List out any five day to day commercial applications of nanotechnology. | CO3 | (5) |
| **PART C( 2 X 10 = 20 MARKS) (ANSWER ANY TWO)** | | | |
| 51. | Explain the method of softening hard water using zeolite. Give its advantages and disadvantages. | CO1 | (10) |
| 52. | Write short notes on a) Umami taste b) Semi conductors | CO1, CO2 | (5+5) |
| 53. | What are batteries? Discuss the construction and working of H2-O2 fuel cell. | CO2 | (2+8) |

ALL THE BEST