

MALLA REDDY ENGINEERING COLLEGE

(AUTONOMOUS)

APPLIED CHEMISTRY

Objective question bank for II MID exam (Common for CSE, ECE and EEE branches)

MODULE-III

POLYMERS AND COMPOSITES

1. The fiber obtained by the step polymerization of hexa-methylene-diamine & adipic acid is []
a) Dacron b) Nylon c) Rayon d) terylene
2. Which of the following is an elastomer []
a) PVC b) Nylon c) Butyl rubber d) polystyrene
3. Co-polymerization of Isobutene and isoprene results in the formation of []
a) Bakelite b) BUNA-S c) Butyl rubber d) Glyptal
4. Natural rubber is basically a polymer of []
a) Chloroprene b) Propylene c) Isoprene d) Ethylene
5. The following is the monomer of polystyrene []
a) Styrene b) Isoprene c) Vinyl Chloride d) Ethylene
6. The following is the monomer of Teflon []
a) $F_2C=CF_2$ b) $H_2C=CHF$ c) $H_2C=CHCl$ d) $F_2C=CHF$
7. The following polymer has ester links in its structure []
a) Nylon b) Bakelite c) PVC d) Terylene
8. The most commonly used reagent for vulcanization of natural rubber is []
a) Graphite b) Sulphur c) Carbon black d) Dry ice
9. Cellulose acetate is a []
a) Thermoplastic (b) thermosetting (c) both (d) none
10. Which one is used to make 'non-stick' cookware? []
a) PVC (b) polystyrene (c) poly (ethyleneterephthalate) d) polytetrafluoroethylene
11. Bakelite is prepared by the condensation of: []
(a) Benzene and formaldehyde (b) Phenol and formaldehyde
(c) Phenol and acetaldehyde (d) Glycerol and phthalic acid
12. One of the important uses of Bakelite is for making: []
a) Cables (b) Electrical switches (c) Cloth (d) Hose pipe
13. Buna-S is an example of synthetic rubber. In this S represents []
a) Silicone b) Sulpur c) Styrene d) Sodium
14. Peptide linkage contains []
a)CO-OR b)COOH c)CHO d) CO-NH
15. PVC formed by []

- a) Addition polymerization b) condensation polymerization c) vulcanization d) none of these
16. Conductivity of a polymer is only because of presence of []
 a) Presence Sigma bond b) Presence of Pi bond c) a & b d) none of these
17. Creating positive site on polymer is called []
 a) n-doping b) oxidation c) p-doping d) reduction
18. The only rubber that can't be vulcanized is []
 a) Butyl rubber b) neoprene c) thiokol rubber d) isoprene
19. An organic polymer can be converted in to conducting polymer if it has []
 a) branched structure b) extensive conjugation in polymer c) non conjugate system d) none
20. Nylon is a []
 a) vinyl polymer b) polyester c) chloroprene d) polyamide
21. Which of the following is a natural fibre []
 a) silk b) PVC c) Thiokol rubber d) polyethylene
22. Example for biodegradable polymer is []
 a) polylactic acid b) polystyrene c) BUNA-S d) None
23. Example for conducting polymer is []
 a) PVC b) Teflon c) Polyacetylene d) None of These
24. An example for p-dopant is []
 a) lewis acid b) sodium naphthalide c) lewis base d) benzene
25. The polymers which can be drawn in the form of long filaments []
 a) Conducting polymers b) biodegradable polymers c) fibres d) none of these

Key for module-III

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
b	c	c	c	a	a	b	b	d	d	b	b	d	d	a	b	c	c	b	d

21	22	23	24	25
a	a	c	a	c

Module-IV Fuels and Combustion

Multiple choice questions

1. Which of the following fuel possesses the maximum calorific value []
 a. C=84%, H=6%, S=4%, O=6% b. C=86%, H=12%, S=1%, O=1%
 c. C=90%, H=5%, S=2%, O=3% d. C=95%, H=2%, S=1%, O=2%
2. A good fuel should possess []
 a. High ignition temperature b. moderate ignition temperature
 c. high calorific value d. both b & c.
3. Which of the following is true []
 a. Coke possesses better strength than coal
 b. Coke burns with a long flame.

- c. Coke burns with a short flame.
d. Sulphur content of coke is higher than that of coal from which it is obtained
4. The main constituent of natural gas is []
a. Carbon monoxide b. Methane c. Hydrogen d. Ethane
5. A knocking sound is produced in the internal combustion engine when the fuel []
a. Burns slowly b. Burns fast
c. Contains some water d. Is contaminated with lubricant
6. Petrol is a mixture of []
a. Alkenes b. Alkanes c. Alkynes d. Aromatic hydrocarbons
7. Which of the following is not a fossil fuel []
a oil b.natural gas c. geothermal d. coal
8. Moisture ,ash content, volatile matter and fixed carbon are measured for coal as part of []
a Proximate analysis b. Ultimate analysis c.proximate and ultimate analysis d. None
9. LPG is predominantly a mixture of propane and []
a.Methane b.Isopropane c. Butane d. Ethane
10. Combustion of which of the following fuel requires the highest amount of excess air []
a light diesel oil b. natural gas c.LPG d.Coal
11. During combustion of gaseous fuels, deficiency of air []
a. does not affect the flame b. Increase the flame temperature
c. tends to shorten the flame d. Lengthens the flame
12. Combustion reaction of fuel is []
a. Exothermic b. Endothermic c. Auto catalytic d. none.
13. Fuels produce energy because []
a. their oxidation reactions are endothermic.
b. they produce large volume of gases.
c. their oxidation reactions are exothermic.
d. none of these
14. Iso-Octane and n-heptane has assigned a rating of []
a 0,100 b.50,50 c. 100,0 d. 20,80
15. The heat energy released is measured with the help of []
a. energy meter b. Thermometer c. calorimeter d. anemometer
16. Fuels are derived as []
a. natural and derived b. primary and secondary fuels
c. addition and condensation fuels d. both a &b
17. A good fuel should have []
a. maximum anti knock property b. maximum knock property
c. minimum anti knock property d. all the above
18. The most impure form of coal is []
a. Anthracite b.Peat c. Wood d. Lignite
19. The calorific value of biogas is []
a. 1500kcal/m³ b. 2500kcal/m³
c. 5300kcal/m³ d. 4300kcal/m³

20. The fuel which has the highest calorific value is []
 a. wood b. petrol c. methane d. hydrogen
21. Biogas contains []
 a. carbondioxide b.methane c. ethylene d.acetylene
22. Natural fuel among the following is []
 a. oil gas b.coke c. petrol d.coal
23. CaCl_2 can absorb the following []
 a.carbondioxide b. carbonmoxide c.water d.nitrogen
24. Compressed natural gas mainly contain []
 a. CO b. N_2 c. CH_4 d. SO_2
25. The calorific value of a fuel is expressed as []
 a. k.cal/m b.k.cal/kg c. Cal/ cm^3 d.k.cal /g
26. An example for secondary fuel is []
 a.petroleum b. Natural gas c.coke d.coal
27. Sulphur compounds from crude oil is removed by treating it with []
 a. Na_2SO_4 b.CuO c.NaCl d.MgO
28. The relation ship between HCV and LCV is []
 a. $\text{LCV}=\text{HCV}+0.9\text{H}*587$ b. $\text{LCV}=\text{HCV}-0.9\text{H}*587$
 c. $\text{HCV}=\text{LCV}-0.09\text{H}*587$ d. $\text{HCV}=\text{LCV}+0.9\text{H}*587$
29. Non-Combustible among the following is []
 a. Carbon b.Hydrogen c.Ash d.Sulphur
30. The fuel which gives more smoke is []
 a.petrol b. LPG c.CNG d.Coal
31. Cottrel's process involves removal of _____ from crude oil []
 a. sulphur b.water c.carbon d.dirt
32. The following is used as catalyst in fixed bed catalytic cracking is []
 a. silica mixed with chromium oxide b.artificial clay mixed with zirconium oxide
 c. china clay mixed zirconium oxide d. alumina mixed with zirconium oxide
33. Carbon chain length in gasoline is []
 a. $\text{C}_1\text{-C}_4$ b. $\text{C}_5\text{-C}_8$ c. $\text{C}_{15}\text{-C}_{23}$ d. C_{20} above
34. Octane number is related with the following product []
 a.diesel oil b. Kerosene oil c.petrol d.lubricant oil
35. Isooctane has an octane rating of []
 a. 100 b.0 c.50 d.80
36. The presence of nitrogen in a coal sample is []
 a. desirable b. undesirable c. most desirable d.less desirable
37. The calorific value of fuel depends upon the percentage of []
 a.volatile matter b.ash c. fixed carbon d. moisture
38. A good fuel should posses _____moisture []

- a. high b. low c. very high d. none
39. The calorific value of gaseous is determined by []
 a. boy's or Junker's calorimeter b. Orsat's apparatus
 c. Bergius process d. none of the above
40. The calorific value of LPG is []
 a. 27800kcal/m³ b. 25000kcal/m³
 c. 29500kcal/m³ d. 23450kcal/m³
41. An Example for secondary solid fuel is []
 a. wood b. anthracite c. lignite d. coke
42. The cetane number of diesel can be improved by adding []
 a. tetra ethyl lead b. ethyl nitrate c. NaNO₃ d. HNO₃
43. The calorific value of diesel is []
 a. 11250kcal/kg b. 11000kcal/kg c. 11200kcal/kg d. 10000kcal/kg
44. The percentage of carbon in anthracite coal is []
 a. 92-95, b. 85-90 c. 60-70 d. none of these
45. The boiling range of gasoline is []
 a. 40 -120⁰ c b. 120⁰ c above c. 180 -250⁰ c d. above 40⁰ c
46. Which will have higher value []
 a. GCV b. NCV c. Both are equal d. cannot be predicted
47. Which is the elemental analysis is []
 a. Proximate analysis (b) ultimate analysis (c) both of these (d) none of these
48. Conversion of coal to coke is called []
 a. Coalification b. carbonization c. bituminization d. none of the above
49. The presence of oxygen content in the coal _____ the calorific value []
 a. increases b. decreases c. remains unchanged d. none of the above
50. An example for secondary gaseous fuel is []
 a. Natural gas b. CNG c. Bio gas d. both b & c

Key for Module-IV

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
d	d	d	b	b	d	b	a	b	d	d	a	c	c	c	d	a	c	c	d

21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
b	d	c	c	b	c	b	b	c	d	b	b	b	c	a	b	c	b	a	a

41	42	43	44	45	46	47	48	49	50
d	b	b	a	a	a	b	b	b	d

MODULE- V

Composites, Nano Chemistry and Green Chemistry

1. In nano materials atoms/ molecules are fabricated in nano scale range []
a) 1 – 10 nm b) 100 – 120 nm c) 10 – 20 nm d) 30 – 50 nm
2. The term NANO stands for []
a) 1 billionth of centimeter b) 1 billionth of meter
c) 1 billionth of foot d) none of these
3. Who is the father of nano materials science []
a) Grahambell b) Dalton c) Richard feynmen d) Newton
4. Nano materials are classified into how many types []
a) 2 b) 1 c) 5 d) 3
5. Which of the following is considered as one dimensional in nano scale []
a) Quantum dots b) Carbon nano tubes c) Fullerenes d) Thin films
6. In nano scale nano wires and nano tubes are []
a) one dimensional b) three dimensional c) two dimensional d) none of these
7. Bio polymers and nano tubes comes under []
a) one dimensional b) three dimensional c) two dimensional d) none of these
8. The important property of nano materials which differs from other materials []
a) increase in surface area b) decrease in surface area
c) increase in constant size d) none of these
9. In nano scale fullerenes are []
a) one dimensional b) three dimensional c) two dimensional d) none of these
10. The catalyst in hydrogenation of oils []
a) Raney Ni b) Rhodium hydrosols c) Palladium d) Silica
11. Which of the following nano materials show effective catalytic activity for methenation of $\text{CO} + \text{H}_2$ at low temperature []
a) Palladium b) Silica c) MoS_2 d) Rhodium hydrosols
12. The stiffest and strongest fibers known []
a) fullerenes b) carbon nano tubes c) nano rods d) none of these
13. Which of the following nano wires show Photoluminescence []
a) Zinc oxide b) semi conductor c) silicone d) carbon
14. The nano tubes of MoS_2 and CoS_2 are used as []
a) semi conductors b) insulators c) storage device d) solid lubricants
15. The structure of C_{60} Fullerene []
a) closed hollow cage b) square c) hexagon d) pentagon
16. Among the following which method will be used for the preparation of nano materials []
a) DVD b) BOD c) CVD d) BAD
17. If the surface area of nano material increases, then its catalytic activity will []
a) decreases b) increases c) no effect d) can't be determined
18. C_{20} fullerenes contains []
a) Pentagons b) hexagons c) a & b d) heptagons
19. C_{60} fullerenes contains []
a) Pentagons b) hexagons c) a & b d) heptagons
20. Carbon nano tubes also called as []
a) Bucky ball clusters b) Bucky tubes c) solar tubes d) CVD
21. Who proposed green chemistry principles []
a) Paul Anastas b) john Warner

- c) William bent
d) a&b
22. Synthetic methods should be designed to minimize incorporation of all materials used in the process into final product called []
a) atom economy b) prevention c) a & b d) none of above
23. Among them which is green solvent []
a) benzene b) dichloro methane c) supercritical water d) deuterated water
24. The constituent in Diels - Alder reaction []
a) dienes b) allyl halides c) vinyl halide d) all the above
25. For green chemistry raw material should be []
a) non - renewable b) renewable c) conventional d) economical
26. For the green reaction Bi-products must be high []
a) true b) false (c) Not applicable (d) None
27. Which of the following reaction gives 100% atom economy []
a) Clemmenson reduction b) elimination reaction c) Diels Alder reaction d) aldol condensation
28. The usage of Phosgene and methyl chloride in the synthesis of Poly carbonates has been replaced by ----- []
a) di-phenyl carbonate b) phenol - formaldehyde c) phenyl carbonate d) carbon dioxide
29. The audible frequency range of ultrasounds []
a) less than 16KHZ b) greater than (or) equal to 16 KHZ c) a&b d) none of above
30. Microwave reactions are faster than thermal reactions []
a) true b) false (c) Not applicable (d) None
31. Addition reactions give []
a) 90% atom economy b) 75% atom economy c) 50% atom economy d) 100% atom economy
32. Econoburette is developed for []
a) micro volumetric titration b)) semi- volumetric titration c)) macro volumetric titration
d) gravimetric titration
33. Econoburette was designed by []
a) Paul Anastas b) John Warner
c) William bent d) Man Singh
34. Which is the non - volatile solvent []
a) Benzene b) Ammonia
c) Phenol d) water
35. R4 stands for Reuse, Recycle, Replenish, Redesign []
a) true b) false (c) Not applicable (d) None
36. A material which contains a mixture of two or more micro constituents, which are insoluble & differing in composition & forming distinct phases, is called []
a) Polymer b) monomer c) composite material d) fibre.
37. The phase is continuous body constituent, which encloses the composite & gives it its bulk form is called []
a) Matrix b) Dispersed phase c) particulate d) Flakes
38. The phase is the structural constituent, which determines the internal structure of composite is known as []
a) Particulate b) Dispersed phase c) Matrix d) Whiskers
39. The fibre obtained as continuous filament by the pyrolysis in an inert atmosphere are known as []
a) Glass fibre b) Carbon fibre c) Aramid fibre d) None

40. The thin strong filaments or fibres several mm in length & several microns in diameter are known as []
 a) Flakes b) Aramid fibres c) Whiskers d) None
41. Mica is an example of []
 a) Whisker b) Matrix c) Flakes d) Glass fibre
42. Wood & bone are example of []
 a) Particulate composite b) fibre-reinforced composite c) Natural composite d) layered composite
43. Silicon carbide is an example of []
 a) Matrix b) layered composite c) Whisker d) Aramid fibre
44. A composite made from filament, a polymeric matrix & a bonding agent is known as []
 a) Fibre-reinforced composite b) particulate composite c) layered composite d) natural composite
45. The composite which forms ceramic bond with a metal is called []
 a) Matrix b) cermet c) Flakes d) Whisker
46. Plywood is an example of []
 a) Fibre-reinforced composite b) layered composite c) particulate composite d) None
47. The composite are made by dispersing particles of varying size & shape of one material in a matrix of another material are known as []
 a) Layered composite b) Aramid Fibre-reinforced composite c) particulate composite d) None
48. A fuel that is produced through contemporary biological process is known as []
 a) Bio fuel b) Bio sensors c) Bio surfocant d) None
49. Which of the following is not a characteristics of composites []
 a) Lower specific gravity b) high thermal expansion c) thermal shock resistance d) corrosion resistance
50. A device which uses a living organism or biological molecules, to detect the presence of chemicals is called []
 a) Bio surfactant b) Bio sensors c) Bio device d) None
51. Which of the following is the example of particulate composite []
 a) Laminated composite b) cermets c) Glass fibre d) Silicon carbide
52. the amphiphilic compounds produced on living surfaces that reduce surface tension & interfacial tension between individual molecules at the surface & interface is called []
 a) Biomass b) Bio fuel c) Bio surfactants d) Bio sensors

Key for module – V

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
A	B	C	D	D	C	C	A	B	B	C	B	C	D	A

16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
C	B	A	C	B	A&B	A	C	D	B	B	C	A	B	A

31	32	33	34	35	36	37	38	39	40	41	42	43	44	45
D	B	D	D	B	C	A	B	B	C	C	C	C	A	B

46	47	48	49	50	51	52
B	C	A	B	B	B	C

