

NADAR SARASWATHI COLLEGE OF ENGINEERING AND TECHNOLOGY, THENI.

Course/Branch : BE / EEE	Year / Semester :IV / VII	Format No.	NAC/TLP-07a.13
Subject Code :OML751	Subject Name :Testing of Materials	Rev. No.	02
Unit No : V	Unit Name : Other Testing	Date	30.09.2020

OBJECTIVE TYPE QUESTION BANK

S. No.	Objective Questions (MCQ /True or False / Fill up with Choices)	BTL
1.	Which of the following technique is used to measure the number of conjugated double bonds and aromatic conjugation within the various molecules? a) Fourier transform infrared b) Differential scanning calorimetry c) U/V Visible spectroscopy d) Thermo gravimetric analysis	L1
2.	Fourier transform infrared spectroscopy is used to study _____ a) Quantitative determination of additives in polymers b) Curing and degradation behaviour of cross-linked polymers c) Determination of volatilities of plasticizers d) Analysis of structural imperfections on the surface	L1
3.	Atomic force microscopy comes under the category of _____ a) Spectral analysis b) Thermal analysis c) Mechanical testing d) Morphological analysis	L1
4.	Which of the following is useful for determination of volatilities of plasticizers and other additives? a) Thermo gravimetric analysis b) Differential scanning calorimetry c) Scanning electron microscopy d) Atomic force microscopy	L2
5.	Differential scanning calorimetry is useful for determining the _____ a) Melting temperature, glass transition temperature, heat of fusion etc b) Volatilities of plasticizers and other additives c) Quantitative determination of additives in polymers d) Structural imperfections	L1
6.	Differential scanning calorimetry comes under the category of _____ a) Spectral analysis b) Morphological analysis c) Thermal analysis d) Geological analysis	L2
7.	Which of the following is used as a criterion in quality control? a) X-ray diffraction b) Mechanical testing c) Wetting properties d) Spectral analysis	L2
8.	The study of fracture surfaces of polymeric material is done using _____ a) Atomic force microscopy b) X-ray diffraction c) Thermo gravimetric analysis d) Scanning electron microscopy	L2

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9.	A hydrophobic surface with low free surface energy gives a _____ with water. a) Low contact angle b) High contact angle c) Zero contact angle d) Extremely low contact angle	L2
10.	An index of crystallinity can be obtained from the ratio of the integrated intensity of the crystalline peaks to the total area under the XRD curve. a) True b) False	L2
11.	Which of the following option is appropriate for the TGA and DTA? a) TGA and DTA measures only weight b) TGA measures only weight while DTA measures other effects c) TGA and DTA measures only temperature d) TGA measures only temperature while DTA measures other effects	L1
12.	In the schematic DTA sequence having reversible and irreversible changes, starting with the hydrated material, which of the following steps occurs first on heating? a) Esterification b) Methylation c) Rehydration d) Dehydration	L2
13.	On studying the reversible process during DTA which of the following is observed on both heating and cooling? a) Esterification b) Hysteresis c) Methylation d) Carboxylation	L1
14.	Which one of the following options is not true for hysteresis? a) It depends on the nature of the material b) It depends on the structural change involved c) It doesn't depend on the experimental conditions d) It doesn't depend on the concentration of the electrode	L1
15.	In the application of DTA and DSC which of the following parameters is measured for the glasses? a) Concentration of the glass b) Solubility of the glass c) Cooling temperature d) Transition temperature	L2
16.	DTA can be used for which of the following process? a) Line positions of the crystals b) Mechanical properties of the crystals c) Phase diagrams d) Catalytic properties of enzymes	L2
17.	A rapid TGA method is used for which of the following process? a) Decomposition of polymers exothermally b) Decomposition of enzymes exothermally	L1

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	c) Decomposition of crystals endothermally d) Decomposition of reactions isothermally		
18.	Which of the following parameters can be used, using the DSC and DTA cells? a) Catalytic properties of enzyme b) Elasticity of crystals c) Enthalpy of substances d) Line positions of phases		L1
19.	If the absorption of electromagnetic radiation by matter results in the emission of radiation of the same or longer wavelengths for a long or a short time, the phenomenon is termed as which of the following? a) Luminescence b) Fluorescence c) Phosphorescence d) Spontaneous emission		L1
20.	If the absorption of electromagnetic radiation by matter results in the emission of radiation of the same or longer wavelengths for a short time, the phenomenon is termed as which of the following? a) Luminescence b) Fluorescence c) Phosphorescence d) Spontaneous emission		L2
21.	If the absorption of electromagnetic radiation by matter results in the emission of radiation of the same or longer wavelengths for a long time, the phenomenon is termed as which of the following? a) Luminescence b) Fluorescence c) Phosphorescence d) Spontaneous emission		L2
22.	Prompt emission of X-ray by an atom ionised by a higher energy X-ray is a type of which of the following phenomena? a) Luminescence b) Fluorescence c) Phosphorescence d) Spontaneous emission		L2
23.	The measurement of intensity of fluorescent X-rays provide a simple and _____ way of _____ analysis. a) Destructive, quantitative b) Non-destructive, quantitative c) Destructive, qualitative d) Non-destructive, qualitative		L2
24.	The energy of the emitted X-rays depends upon the _____ of the atom and their intensity depends upon the _____ a) Atomic number, amount of sample b) Mass number, amount of sample c) Mass number, concentration of atoms		L1

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	d) Atomic number, concentration of atoms	
25.	Which of the following is Mosely's equation if 'C' is the speed of light, 'a' is proportionality constant, 'σ' is a constant which depends on electronic transition series, 'Z' is the atomic number and 'λ' is the wavelength? a) $C\lambda = a(Z-\sigma)^2$ b) $C/\lambda = a(Z-\sigma)^2$ c) $C(Z-\sigma)^2 = a\lambda$ d) $C(Z-\sigma)^2 = a/\lambda$	L2
26.	The problem of spectral interference is not severe in X-ray spectroscopy. a) True b) False	L1
27.	In X-ray fluorescence spectrometer, the relationship between the excitation intensity and the intensity of fluorescence does not depend on which of the following? a) Spectrum of the incident radiation b) Angle of radiance c) Molecular weight d) Incident angle	L1
28.	Fluorescent X-ray spectrometers would require only moderate-intensity X-ray tubes. a) True b) False	L2
29.	ICP's principle is similar to which of the following? a) Flame emission spectroscopy b) Fourier transforms spectroscopy c) Atomic emission spectroscopy d) Absorption spectroscopy	L2
30.	ICP is used to analyse samples in which of the following states? a) Solids b) Liquids c) Gases d) Solids and liquids	L2
31.	Solid samples are introduced into the ICP spectrometer using which of the following? a) Nebulizer b) Curvette having glass windows c) Probe d) Laser ablation system	L2
32.	Liquid samples are introduced into the ICP spectrometer using which of the following? a) Nebulizer b) Curvette having glass windows c) Probe	L2

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	d) Laser ablation system	
33.	Atomisation or ionisation occurs at which of the following conditions? a) Vacuum pressure b) Atmospheric pressure c) Low pressure d) High pressure	L1
34.	Ions flow is pumped into the vacuum system using which of the following? a) Orifice b) Nozzle c) Venturi meter d) Dall tube	L2
35.	Which of the following is not the characteristic of ICP spectrometer? a) Easy sample introduction b) It can trace multiple elements c) High detection limits d) Accurate	L1
36.	ICP spectrometer is a sequential multi-element analyser that has scan times less than ____ for one sweep. a) 10ms b) 20ms c) 50ms d) 100ms	L1
37.	Double focussing section analysers offer better resolution than ICP spectrometry system. a) True b) False	L1
38.	The most common type of ion detector found in ICP system is which of the following? a) Faraday cup collector b) Channeltron c) Micro-channel plate d) Flame ionization detector	L2
39.	Which of the following is the most accurate method of determination of elemental composition? a) Spectroscopy b) Isotope dilution c) Isobar dilution d) Chromatography	L2
40.	Which of the following is the disadvantage of ICP mass spectroscopy? a) Incapable of multi-element analysis	L1

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	b) Less sensitivity c) Impossible to obtain isotopic information d) Not useful for detection of non-metals	
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