Enrollment No: _____ Exam Seat No:_____

C.U.SHAH UNIVERSITY
Winter Examination-2015

Subject Name : Industrial Measurement

Subject Code :4TE05IMT1 **Branch: B.Tech (IC)**

Semester :5 **Date :09/12/2015** **Time :2:30 To5:30** **Marks :70**

Instructions:

(1) Use of Programmable calculator & any other electronic instrument is prohibited.
(2) Instructions written on main answer book are strictly to be obeyed.
(3) Draw neat diagrams and figures (if necessary) at right places.
(4) Assume suitable data if needed.

Q-1 **Attempt the following questions:** **(14)**

1. If Ph of solution is 7 then solution is_____
a)Acidic
b)Basic
c)Neutral
d)None of the above

2. Which gas is not use as carrier gas in gas chromatography?
a)Hydrogen
b)Helium
c) Nitrogen
d)Oxygen

3. In Electromagnetic Spectrum Wave length of microwaves are_____
a)10^{-1}to10^{1}
b)10^{-4}to10^{-6}
c)10^{-2}to10^{-4}
d)10^{-10}to10^{-12}

4. Which detector is known as Universal detector_____
a)Thermal conductivity detector
b) flame photometric detector
c) flame ionization detector
d) photo ionization detector

5. Viscosity is defined as_____
a) shear stress / shear rate
b)shear rate/shear stress
c)shear rate*shear stress
d)None of the above

6. By change in 1^0 C temperature the EMF of the solution changes by ____
a)0.4mV
b)0.6mV

c)0.2mV
d)05mV

7. Reference Electrode is also known as_____
a)Glass Electrode
b)Calomel Electrode
c)Hydrogen Electrode
d)Metal Electrode

8. Anything that causes an object to change its position or velocity is called
a)Mass
b)a moment
c)distance
d)Force

9. The unit of force is the
a)meter
b)meter per seconds
c)m/s^2
d)Newton

10. In Electromagnetic Spectrum Wave length of X-rays are_____
a)$10^{-1}to10^{-4}$
b)$10^{-8}to10^{-10}$
c)$10^{-5}to10^{-7}$
d)$10^{-10}to10^{-12}$

11. Which method is known as the physical separation method?
a)Neutralization
b)Hydrolysis
c)Gas Chromatography
d)None of the above

12. Which of the following statements about chromatography is correct?
a)Paper chromatography is usually considered to be quantitative only, while gas chromatography can be qualitative or quantitative
b)Paper chromatography is usually considered to be qualitative only, while gas chromatography can be qualitative or quantitative
c)Paper chromatography and gas chromatography are both routinely used for quantitative analysis only
d)Paper chromatography and gas chromatography are both routinely used for qualitative analysis only

13. A characteristic feature of any form of chromatography is the
a) Use of molecules that are soluble in water
b) Calculation of an Rf value for the molecules separated.
c) Use of a mobile and a stationary phase.
d)Use of an inert carrier gas

14. The coefficient of viscosity may be expressed in units of
a)kg s m^{-2}
b)kg m s^{-2}
c)N s m^{-2}
d)N m s^{-2}

Attempt any four questions from Q-2 to Q-8

Q-2	**(a)**	Explain Gas Chromatography and Paper Chromatography in detail with suitable diagram	**(14)**
Q-3	**(a)**	Explain mass spectroscopy with necessary diagram	**(7)**
	(b)	Write a note on Nuclear Magnetic Resonance spectroscopy	**(7)**
Q-4	**(a)**	Explain Quartz crystal oscillator instrument for moisture measurement with neat sketch	**(7)**
	(b)	Explain magnetic wind instrument for paramagnetic oxygen analyzer	**(7)**
Q-5	**(a)**	Explain flame ionization detector (FID).	**(7)**
	(b)	Explain reference electrode in detail with neat sketch.	**(7)**
Q-6	**(a)**	Explain Strain gauge load cell in detail with necessary diagram	**(7)**
	(b)	Define Viscosity. What are the different methods of Viscosity measurement? Explain any one method with working principle & suitable diagram	**(7)**
Q-7	**(a)**	Explain any two Circuits for strain gauges measurement	**(7)**
	(b)	Explain Force balance method.	**(7)**
Q-8	**(a)**	Explain Proving ring method.	**(7)**
	(b)	Explain Thermal Conductivity Detector (TCD).	**(7)**