

***** EXAMINATION *****

MOLECULAR CHEMISTRY OF INHIBITED COMBUSTION SYSTEMS

1. **Chemical kinetics also known as reaction kinetics are the**
 - a) study of rates of chemical concentrations
 - b) study of rates of chemical radiations
 - c) study of rates of chemical conditions
 - d) study of rates of chemical processes

2. **The mass spectrometry is an analytical technique to**
 - a) implement the elemental composition of a sample
 - b) direct the elemental composition of a sample
 - c) determine the elemental composition of a sample
 - d) differentiate the elemental composition of a sample

3. **Spectroscopy was originally the study of the interaction**
 - a) between oxidation and matter as a function of wavelength
 - b) between radiation and matter as a function of wavelength
 - c) between hydration and matter as a function of wavelength
 - d) between diffusion and matter as a function of wavelength

4. **A thermodynamic system in thermal equilibrium is**
 - a) in thermodynamic equilibrium
 - b) in thermodynamic process
 - c) in thermodynamic cycle
 - d) in thermodynamic state

5. **The mole fraction is a way of expressing the**
 - a) composition of a mixture
 - b) process of a reaction
 - c) application of a material
 - d) direction of a range

6. **Chemiluminescence is the emission of light with limited**
 - a) emission of heat as the result of a chemical mixture
 - b) emission of heat as the result of a chemical reaction
 - c) emission of heat as the result of a chemical flow
 - d) emission of heat as the result of a chemical bond

7. **Raman is the inelastic scattering of**
- a) a neutron
 - b) a proton
 - c) a photon
 - d) a gluon
8. **Optoacoustic is the technique which combines the accuracy of**
- a) microscopy with the depth resolution of ultrasound
 - b) polyscopy with the depth resolution of ultrasound
 - c) hygrosopy with the depth resolution of ultrasound
 - d) spectroscopy with the depth resolution of ultrasound
9. **The rotational energy is the kinetic energy due to**
- a) the mass of an object
 - b) the density of an object
 - c) the location of an object
 - d) the rotation of an object
10. **An internal energy is the total of the kinetic energy**
- a) due to the transformation of particles
 - b) due to the location of particles
 - c) due to the motion of particles
 - d) due to the volume of particles
11. **Na-D line reversal is the oldest optical technique for**
- a) measuring smoke temperature
 - b) measuring flame temperature
 - c) measuring liquid temperature
 - d) measuring metal temperature
12. **A pyrometer is a non-contacting device that intercepts and**
- a) measures thermal radiation
 - b) measures thermal insulation
 - c) measures thermal oxidation
 - d) measures thermal activation
13. **The Kirchhoff's law is the general statement equating**
- a) emission and absorption in heated objects
 - b) diffusion and desorption in heated objects
 - c) radiation and adsorption in heated objects
 - d) conduction and decomposition in heated objects

14. **The Boltzmann distribution is the certain probability measure**
- a) for the distribution of the directions of a system
 - b) for the distribution of the states of a system
 - c) for the distribution of the functions of a system
 - d) for the distribution of the parameters of a system
15. **A monochromator is an optical device that transmits a**
- a) mechanical selectable narrow band of wavelengths of heat
 - b) mechanical selectable narrow band of wavelengths of sound
 - c) mechanical selectable narrow band of wavelengths of light
 - d) mechanical selectable narrow band of wavelengths of fire
16. **Absorption spectrum is a fraction of incident EM radiation**
- a) absorbed by material over a direction of frequencies
 - b) absorbed by material over a transition of frequencies
 - c) absorbed by material over a bulk of frequencies
 - d) absorbed by material over a range of frequencies
17. **The path that light takes in traversing an optical system is**
- a) called the optical field
 - b) called the optical circulator
 - c) called the optical format
 - d) called the optical path
18. **The Raman spectroscopy is a spectroscopic technique used to**
- a) study vibrational and other low frequency modes
 - b) study vibrational and other low frequency spectrums
 - c) study vibrational and other low frequency domains
 - d) study vibrational and other low frequency responses
19. **Quantum numbers describe values of conserved quantities in**
- a) the dynamics of the quantum gravity
 - b) the dynamics of the quantum system
 - c) the dynamics of the quantum state
 - d) the dynamics of the quantum dissipation
20. **Extrapolation is the process of constructing new data points**
- a) inside a discrete set of known data types
 - b) outside a discrete set of known data points
 - c) outside a discrete set of known data structures
 - d) outside a discrete set of known data flows

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