

**GEOGRAPHIC INFORMATION SYSTEMS
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***** EXAMINATION *****

**ENVIRONMENTAL DURABILITY OF COMPOSITES
FOR SEISMIC RETROFIT OF BRIDGE COLUMNS**

1. The modification of a structure for more resistance to
 - a) seismic activity and ground motion is a seismic hazard
 - b) seismic activity and ground motion is seismic risk
 - c) seismic activity and ground motion is seismic loading
 - d) seismic activity and ground motion is seismic retrofit

2. A material used as a reinforcing agent for many polymer
 - a) products is frosted glass
 - b) products is ground glass
 - c) products is fiberglass
 - d) products is flat glass

3. The transformation of a glass-forming liquid to a glass
 - a) by rapid cooling is glass modeling
 - b) by rapid cooling is glass transition
 - c) by rapid cooling is glass forming
 - d) rapid cooling is glass melting

4. The process of melting or making something melt or defrost
 - a) by heat is thawing
 - b) by heat is retrofitting
 - c) by heat is loading
 - d) by heat is fitting

5. An important property of engineering materials used in
 - a) structures and mechanical devices is tensile strength
 - b) structures and mechanical devices is tensile stress
 - c) structures and mechanical devices is tensile modulus
 - d) structures and mechanical devices is tensile structure

6. The strength of a material against the type of yield where
 - a) the material fails in shear is shear stress
 - b) the material fails in shear is shear strength
 - c) the material fails in shear is shear modulus
 - d) the material fails in shear is shear mapping

7. The measure of the stiffness of an isotropic elastic material is
 - a) shear modulus
 - b) tensile modulus
 - c) Young's modulus
 - d) modulus of rupture
8. An instrument typically used as a measure of hardness in polymers, elastomers, and rubbers is
 - a) chronometer
 - b) bolometer
 - c) piezometer
 - d) durometer
9. The normalized measure of dispersion of a probability distribution is
 - a) coefficient of friction
 - b) coefficient of variation
 - c) coefficient of determination
 - d) coefficient of correlation
10. The light in sunlight emitted by electric arcs and black lights is
 - a) ultraviolet light
 - b) visible light
 - c) infrared light
 - d) actinic light
11. The very strong, light and expensive composite material or fiber reinforced polymer is
 - a) short fiber reinforced blends
 - b) fiber reinforced concrete
 - c) carbon fiber reinforced epoxy
 - d) cement bonded wood fiber
12. The effects of the environmental exposures are being
 - a) quantified by measurements of the tensile modulus
 - b) quantified by measurements of the failure strain
 - c) quantified by measurements of the glass transition
 - d) All of the above
13. A fabrication technique for creating composite material structures is
 - a) fusion splicing
 - b) filament winding
 - c) resin dispensing
 - d) soda pulping
14. The material constructed by joining two or more layers of material together is
 - a) lamination
 - b) joint
 - c) column
 - d) pultrusion

15. Two or more agents working together to produce a result not
- a) obtainable by the agents independently is monergism
 - b) obtainable by the agents independently is modernism
 - c) obtainable by the agents independently is synergism
 - d) obtainable by the agents independently is mannerism
16. The involvement in something that completely occupies all the
- a) time, energy, or concentration available is regression
 - b) time, energy, or concentration available is depression
 - c) time, energy, or concentration available is corrosion
 - d) time, energy, or concentration available is immersion
17. The state in which the chemical activities of the reactants
- a) have no net change over time is chemical transformation
 - b) have no net change over time is chemical equilibrium
 - c) have no net change over time is chemical vapor deposition
 - d) have no net change over time is chemical vapor infiltration
18. The term that describes the materials or substances response
- a) to an applied field is susceptibility
 - b) to an applied field is conductivity
 - c) to an applied field is compatibility
 - d) to an applied field is permeability
19. The device that is used to measure small or big changes in
- a) the length of an object is a chronometer
 - b) the length of an object is a durometer
 - c) the length of an object is an extensometer
 - d) the length of an object is a piezometer
20. The ration of shear stress to the shear strain is
- a) the shear stress
 - b) the shear strain
 - c) the shear strength
 - d) the shear modulus

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