

**\*\*\* EXAMINATION \*\*\***

**ELASTIC PROPERTIES OF MODEL RANDOM  
THREE-DIMENSIONAL OPEN-CELL SOLIDS**

1. **A numerical system for finding the rough solutions of partial**
  - a) differential equations is the finite element method
  - b) differential equations is the discrete element method
  - c) differential equations is the direct stiffness method
  - d) differential equations is the boundary element method
  
2. **The special kind of decomposition of a metric space to a**
  - a) specified discrete set is called uniform tessellation
  - b) specified discrete set is called Voronoi tessellation
  - c) specified discrete set is called triangulation
  - d) specified discrete set is called pinwheel tiling
  
3. **A structural component designed to resist longitudinal**
  - a) compression is the beam
  - b) compression is the chassis
  - c) compression is the strut
  - d) compression is the node
  
4. **The structural element that is capable of withstanding load**
  - a) primarily by resisting bending is a beam
  - b) primarily by resisting bending is a chassis
  - c) primarily by resisting bending is a strut
  - d) primarily by resisting bending is a node
  
5. **The behavior of a linear autonomous system around a critical**
  - a) point is a beam
  - b) point is a chassis
  - c) point is a strut
  - d) point is a node
  
6. **A polyhedron composed of four triangular faces, three of which**
  - a) meet at each vertex is the octahedron
  - b) meet at each vertex is the tetrahedron
  - c) meet at each vertex is the icosahedron
  - d) meet at each vertex is the dodecahedron

7. **The set of points which are a fixed distance from a central**
- a) point in space is a corona
  - b) point in space is a crust
  - c) point in space is a sphere
  - d) point in space is an annulus
8. **A pixel in the digital model belongs to an edge if it is**
- a) approximately equidistant from at least two sphere centers
  - b) approximately equidistant from at least three sphere centers
  - c) approximately equidistant from at least four sphere centers
  - d) approximately equidistant from at least five sphere centers
9. **A substance that is formed by trapping gas bubbles in a**
- a) liquid or solid is a foam
  - b) liquid or solid is a gel
  - c) liquid or solid is a sol
  - d) liquid or solid is an aerosol
10. **The smallest item of information in an image is**
- a) a bit
  - b) a lux
  - c) a dot
  - d) a pixel
11. **The condition of physical cosmology generated by mechanical**
- a) fluctuations in an inflation is the Markov random field
  - b) fluctuations in an inflation is the Gaussian random field
  - c) fluctuations in an inflation is the Gibbs random field
  - d) fluctuations in an inflation is the conditional random field
12. **The relation when a sample object is stretched of the transverse**
- a) strain to the axial strain is Young modulus
  - b) strain to the axial strain is Hooke's law
  - c) strain to the axial strain is Poisson ratio
  - d) strain to the axial strain is auxetic material
13. **Manufactured cellular materials have been developed for**
- a) insulation
  - b) light-weight reinforcement
  - c) filtration
  - d) All of the above
14. **The structure of a prepared surface material as revealed by**
- a) a microscope above 25X magnification is a microstructure
  - b) a microscope above 25X magnification is a macrostructure
  - c) a microscope above 25X magnification is a bio structure
  - d) a microscope above 25X magnification is a hydro structure

15. **The uniformity in all directions is called**
- a) anisotropy
  - b) isotropy
  - c) biisotropic
  - d) axial symmetry
16. **A solid permeated by an interconnected network of voids**
- a) filled with a fluid is a mesoporous material
  - b) filled with a fluid is a microporous material
  - c) filled with a fluid is a macroporous material
  - d) filled with a fluid is a porous material
17. **Modulus of rigidity is also known as**
- a) Young modulus
  - b) bulk modulus
  - c) shear modulus
  - d) elastic modulus
18. **A modulus that describes the materials response to uniform**
- a) uniform pressure is the Young modulus
  - b) uniform pressure is the bulk modulus
  - c) uniform pressure is the shear modulus
  - d) uniform pressure is the elastic modulus
19. **The mass per unit volume of a material is the**
- a) density
  - b) velocity
  - c) capacity
  - d) gravity
20. **The study of shape, size, texture, and phase distribution**
- a) of physical objects is geology
  - b) of physical objects is etymology
  - c) of physical objects is geomorphology
  - d) of physical objects is morphology

GEOGRAPHIC INFORMATION SYSTEMS  
 GEOGRAPHIC INFORMATION CENTER  
 PO BOX 5839  
 MC ALLEN, TEXAS 78502-5839

1-800-522-0139  
 kh@acnet.net  
 Copyright 2010

<b>*** ANSWER SHEET *** U572</b>  <b>ELASTIC PROPERTIES OF MODEL RANDOM          THREE-DIMENSIONAL OPEN-CELL SOLIDS</b>	<u>STATE BOARD</u>	<u>COURSE NO.</u>	<u>VALUE</u>
			8 PDH
Office Use Only			

FILL IN ONE BOX FOR EACH ANSWER.

	A	B	C	D
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				

I hereby certify that I studied the course materials, and the above answers are my own. No one has helped me to complete this exam.

\_\_\_\_\_  
 Signature Date

\_\_\_\_\_  
 Printed or typed name

\_\_\_\_\_  
 Seal or Number

**GEOGRAPHIC INFORMATION SYSTEMS  
GEOGRAPHIC INFORMATION CENTER  
PO BOX 5839  
MC ALLEN, TEXAS 78502-5839**

**(800) 522-0139**

**kh@acnet.net  
Copyright 2010**

---

**Name** \_\_\_\_\_

**Company** \_\_\_\_\_

**Address** \_\_\_\_\_

**City** \_\_\_\_\_ **State** \_\_\_\_\_ **Zip** \_\_\_\_\_

**Telephone** \_\_\_\_\_ **E-Mail** \_\_\_\_\_

**Fax** \_\_\_\_\_  **24-Hour Fax**

**Yes**  **No** **If fax and telephone are the same number, shall we call first?**

**Mail the certificates to above address** \_\_\_\_\_ **check address** \_\_\_\_\_ **envelope address**

**State + Specialty + PE Registration number (i.e. TX EE 12389)** \_\_\_\_\_

**State + Professional Land Surveying registration number** \_\_\_\_\_

**NC (North Carolina) + Specialty + PE Registration number** \_\_\_\_\_

**NC (North Carolina) + Professional Land Surveying registration number** \_\_\_\_\_

**Professional Affiliations** \_\_\_\_\_

Return this page with your answer sheet and a check or money order for \$100 per course. Use one check for each registrant (in your company) taking one or more courses. We accept company checks (if they are your employer's). We do not accept third-party checks or checks outside of your city of residence. Using third-party checks that do not include your name or company name may invalidate your professional development hours being reviewed by an audit process. Add \$5 for same day processing and priority shipping.

Make checks or money orders payable to Geographic Information Systems.

