

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

STRUCTURAL AND ARCHITECTURAL DESIGN OF PUMPING STATIONS

1. **Periodic freezing precipitation requires:**
 - a) recessed or covered exterior entrance/egress doors
 - b) automatic door systems
 - c) wood shingle roofs
 - d) None of the above

2. **Native architecture refers to:**
 - a) American Indian architecture
 - b) Spanish-American architecture
 - c) the existing architecture of the community or region
 - d) All of the above

3. **Space requirements are required for:**
 - a) equipment
 - b) personnel
 - c) storage
 - d) All of the above

4. **For low maintenance costs, girders and beams are constructed with:**
 - a) 8 by 8 wood beams
 - b) reinforced concrete
 - c) high-stress vinyl
 - d) structural steel

5. **Roofing material should be:**
 - a) shingles
 - b) metal
 - c) tile
 - d) Any of the above

6. **The minimum slope of built-up roofs is:**
 - a) one-quarter inch per horizontal foot
 - b) one-half inch per horizontal foot
 - c) one inch per horizontal foot
 - d) two inches per horizontal foot

7. **The minimum slope of composition shingle roofs is:**
 - a) one-quarter inch per horizontal foot
 - b) one-half inch per horizontal foot
 - c) one inch per horizontal foot
 - d) two inches per horizontal foot

8. **Prior to foundation design, there shall be:**
 - a) a topographic survey
 - b) an environmental impact statement made.
 - c) soil borings and tests
 - d) a leveling of the site

9. **To exceed the strength of concrete, a structure base on rock**
 - a) must be equalized
 - b) must be balanced
 - c) must be relieved
 - d) must be proportioned

10. **For materials that do not have sufficient bearing capacity for the**
 - a) structure, the foundation must use reinforced concrete
 - b) structure, sites must be excavated & replaced with suitable material
 - c) structure, foundation piles are required.
 - d) structure, the site material must be compacted

11. **Ground water in low lying areas is:**
 - a) controlled by relief wells
 - b) detoured by drainage ditches
 - c) controlled by calcium carbonate
 - d) None of the above

12. **The primary structural components of a pumping station are:**
 - a) substructure and operating floor
 - b) superstructure
 - c) crane runways and discharge facilities
 - d) All of the above

13. **Hydrostatic loads are calculated for:**
 - a) water below the ground line
 - b) water above the ground line
 - c) water below the groundwater line
 - d) water above the groundwater line

14. **Seismic investigations at a minimum should include:**
 - a) earthquake studies
 - b) movement studies using geophones
 - c) defensive design measures
 - d) None of the above

15. **Minimum structural support for the operating floor shall be:**
- a) 100 pounds per square foot
 - b) 300 pounds per square foot
 - c) 500 pounds per square foot
 - d) 700 pounds per square foot
16. **Stability analyses should be made for structures against:**
- a) overturning
 - b) sliding
 - c) flotation
 - d) All of the above
17. **Waterstops are generally made of:**
- a) extruded PVC or molded rubber
 - b) shotcrete
 - c) architectural concrete
 - d) None of the above
18. **Conduits through urban levees and populated areas should be:**
- a) CMP
 - b) RCP
 - c) LCC
 - d) None of the above
19. **Corrugated metal pipe for agricultural levees should not exceed:**
- a) 12 inches
 - b) 24 inches
 - c) 36 inches
 - d) 48 inches
20. **Conduit pipe lengths for nominal foundation settlement should not**
- a) exceed 8 feet
 - b) exceed 12 feet
 - c) exceed 16 feet
 - d) exceed 20 feet

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*** ANSWER SHEET *** U29 STRUCTURAL AND ARCHITECTURAL DESIGN OF PUMPING STATIONS	<u>STATE BOARD</u>	<u>COURSE NO.</u>	<u>VALUE</u>
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