

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

1-800-522-0139

**kh@acnet.net
Copyright 2010**

***** EXAMINATION *****

MECHANICAL AND ELECTRICAL DESIGN OF PUMPING STATIONS

1. **The operation of a pumping station can be performed by:**
 - a) the district manager only
 - b) minimally trained personnel
 - c) the project engineers
 - d) the designer

2. **The maintenance of a pumping station can be performed by:**
 - a) the district manager only
 - b) minimally trained personnel
 - c) the project engineers
 - d) trained personnel or experienced contractors

3. **The operation and maintenance of the pumping station is**
 - a) contained in the construction plans
 - b) contained in a manual
 - c) contained in standard code books
 - d) None of the above.

4. **The operation portion of the manual are divided into three parts:**
 - a) criteria, constraints, and procedures.
 - b) criteria, maintenance, and procedures.
 - c) maintenance, constraints, and procedures.
 - d) criteria, constraints, and maintenance

5. **The operation of the facility that satisfies project**
 - a) requirements is the criteria portion
 - b) requirements is the maintenance portion
 - c) requirements is the constraints portion
 - d) requirements is the procedures portion

6. **Conditions considered external to the station are explained in:**
 - a) the criteria portion
 - b) the maintenance portion
 - c) the constraints portion
 - d) the procedures portion

7. **The operating methods for the equipment are explained in:**
 - a) the criteria portion
 - b) the maintenance portion
 - c) the constraints portion
 - d) the procedures portion

8. **A pumping station maintenance program consists of:**
 - a) inspections, standards, a control systems, and lubrication.
 - b) codes, standards, inspections, and lubrication.
 - c) codes, standards, inspections, and control systems.
 - d) standards, control systems, lubrication, and codes.

9. **A guide for inspection of equipment is usually recommended by:**
 - a) the design engineer
 - b) the manufacturer
 - c) the plant operator
 - d) None of the above.

10. **The quality, extent, and quantity of maintenance is contained**
 - a) in the codes
 - b) in the lubrication schedule
 - c) in the standards
 - d) in the control system

11. **A history of inspections, maintenance, and lubrication is**
 - a) contained in the codes
 - b) contained in the lubrication schedule
 - c) contained in the standards
 - d) contained in the control system

12. **Record of equipment inspection and hours of operation are**
 - a) included in the preventive maintenance file.
 - b) included in the equipment data file
 - c) included in the operations manual
 - d) included in the inspection reports

13. **All equipment should be operated at least every:**
 - a) seven days
 - b) fourteen days
 - c) thirty days
 - d) ninety days

14. **Operating costs include:**
 - a) costs of energy
 - b) manpower
 - c) operating supplies and maintenance costs
 - d) All of the above

15. **The types of power-raking equipment include:**
- a) cable hoist, mechanical, and manual
 - b) cable hoist, mechanical, and catenary
 - c) mechanical, manual, and catenary
 - d) None of the above.
16. **The operating area ventilation should provide for:**
- a) 1 air change per hour during non-operating periods.
 - b) 3 air changes per hour during non-operating periods.
 - c) 6 air changes per hour during non-operating periods.
 - d) 9 air changes per hour during non-operating periods.
17. **Protecting electrical pumps from deterioration and corrosion includes**
- a) using heaters
 - b) using heating or dehumidification of the operating room
 - c) using heating or dehumidification of the interior of the motors
 - d) All of the above
18. **Sump pumps should be sized to unwater sump areas within:**
- a) 6 hours
 - b) 12 hours
 - c) 24 hours
 - d) None of the above.
19. **The reliability of a pump should be checked by:**
- a) the design engineer
 - b) the operator
 - c) the manufacturer
 - d) examining the power outage records of the electric company.
20. **Pump performance tests should be completed:**
- a) at the proposed site.
 - b) at the manufacturer's facilities.
 - c) either a or b.
 - d) neither a nor b.
21. **Sump pumping stations tests include:**
- a) adverse flow distribution
 - b) optimal flow into a pump impeller
 - c) examination of swirl
 - d) All of the above.
22. **The design investigation for power supply needs should:**
- a) disclose the optimum system operating voltage,
 - b) locate existing utility facilities,
 - c) power capacities
 - d) All of the above.

23. **Most flood-control pump stations operate at:**
- a) 480 volts
 - b) 4160 volts
 - c) Both a and b
 - d) Neither a nor b.
24. **Motors of 150 kW and below operate most economically at:**
- a) 220 volts
 - b) 480 volts
 - c) 2300 volts
 - d) 4000 volts
25. **The two type of distribution systems are:**
- a) Radial and network
 - b) Simultaneous and non-simultaneous
 - c) Radial and non-distributed
 - d) None of the above.
26. **The designer of the short-circuit studies for the supply system will:**
- a) obtain the maximum fault current available
 - b) transmit station loads and motor starting requirements to the utility
 - c) obtain the power factor and motor inrush limitations.
 - d) All of the above.
27. **Constant-speed pump motor types should be:**
- a) squirrel-cage
 - b) non-synchronous
 - c) alternating
 - d) None of the above.
28. **For horizontal vs. vertical-type motor construction, cost analysis**
- a) includes installation
 - b) includes maintenance
 - c) includes additional floor space
 - d) All of the above.

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

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

<p>*** ANSWER SHEET *** U16</p> <p>MECHANICAL AND ELECTRICAL DESIGN OF PUMPING STATIONS</p>	<p>STATE BOARD</p>	<p>COURSE NO.</p>	<p>VALUE</p>
			<p>8 PDH</p>
<p>Office Use Only</p>			

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				

	A	B	C	D
21				
22				
23				
24				
25				
26				
27				
28				

I hereby certify that I studied the course materials, and the above answers are my own. No other person 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**

**1-800-522-0139
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 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) + 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.

