

***** EXAMINATION *****

LUBRICANTS AND HYDRAULIC FLUIDS

1. **Friction is a:**
 - a) force
 - b) surface
 - c) resistance
 - d) motion

2. **Asperities are:**
 - a) the amounts of air between two surfaces
 - b) small irregularities on a surface
 - c) the amounts of air absorbed by surfaces during friction
 - d) lubricants used to provide air between surfaces

3. **A welding effect occurring when 2 bodies are compressed is:**
 - a) compression
 - b) asperitation
 - c) friction
 - d) adhesion

4. **When a surface slides and cuts grooves on a soft surface, it is**
 - a) known as adhesive wear
 - b) known as corrosive wear
 - c) known as abrasive wear
 - d) known as pitting wear

5. **Cold welding is also known as:**
 - a) adhesive wear
 - b) corrosive wear
 - c) abrasive wear
 - d) pitting wear

6. **Surface failure as a result of stresses that exceed the fatigue**
 - a) limit is adhesive wear
 - b) limit is corrosive wear
 - c) limit is abrasive wear
 - d) limit is pitting wear

7. **Wear as a result of chemical reaction on the wearing surface is:**
- a) adhesive wear
 - b) corrosive wear
 - c) abrasive wear
 - d) pitting wear
8. **Besides lubrication, wear can be reduced by:**
- a) appropriate machine design
 - b) precision machining
 - c) proper material selection
 - d) All of the above
9. **The purpose of lubrication is:**
- a) to completely eliminate wear
 - b) to completely eliminate heat
 - c) both a and b
 - d) None of the above
10. **Fluid pressure provided by an outside source is known as:**
- a) hydrostatic lubrication
 - b) horizontal lubrication
 - c) pressure lubrication
 - d) hydraulic lubrication
11. **A portion of the crude with a specified boiling point range is**
- a) known as heavy crude
 - b) known as distillation
 - c) known as fraction
 - d) known as refinable crude
12. **Removing undesirable components from fractions includes:**
- a) solvent refining
 - b) solvent dewaxing
 - c) catalytic hydrogenation
 - d) All of the above
13. **Clay percolation is used to remove:**
- a) acids
 - b) carbonates
 - c) polar substances
 - d) low-density metals
14. **Separation into fractions involve:**
- a) crude distillation
 - b) residuum distillation
 - c) both a and b
 - d) None of the above

15. **The advantage of paraffinic oils over naphthnic oils is:**
- a) lower pour point
 - b) excellent stability i.e. higher resistance to oxidation
 - c) lower viscosity index
 - d) higher volatility
16. **Synthetic lubricants are:**
- a) produced from chemical synthesis
 - b) produced from normal petroleum refining
 - c) less superior than mineral lubricants
 - d) None of the above
17. **Major categories of synthetic lubricants include:**
- a) organic esters
 - b) phosphate esters
 - c) polyglycols
 - d) All of the above
18. **Lubricating oil characteristics include:**
- a) viscosity index
 - b) cloud point
 - c) pour point
 - d) All of the above
19. **The purpose of hydraulic fluids is:**
- a) power transmission
 - b) sealing
 - c) cooling
 - d) All of the above
20. **A quality of a hydraulic fluid is:**
- a) oxidation stability
 - b) rust and corrosion prevision
 - c) air entrainment and foaming
 - 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

*** ANSWER SHEET *** U35 LUBRICANTS AND HYDRAULIC FLUIDS	<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 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.

