

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

1-800-522-0139

**kh@acnet.net
Copyright 2010**

***** EXAMINATION *****

BLAST DESIGN OF STEEL STRUCTURES TO PREVENT PROGRESSIVE COLLAPSE

1. **Structural design of buildings to withstand blast explosions has:**
 - a) typically been limited to petrochemical and military structures
 - b) typically been limited to high-rise buildings
 - c) typically been limited to single story buildings
 - d) None of the above
2. **Government and commercial buildings are now subject to blast**
 - a) explosions because of increased government red tape
 - b) explosions because of increased terrorism
 - c) explosions because of decreased government red tape
 - d) None of the above
3. **Besides terrorism, structural problems have been caused by:**
 - a) tornadoes
 - b) hurricanes
 - c) earthquakes
 - d) All of the above
4. **Improved structural design in buildings that will be bombed will:**
 - a) be more cost effective than normal design
 - b) save lives and prevent injuries
 - c) improve energy costs
 - d) All of the above
5. **The least familiar conventional design load has been:**
 - a) wind loads
 - b) seismic loads
 - c) gravity loads
 - d) progressive collapse due to an explosion
6. **Structural steel materials have been replaced by blast consultants with:**
 - a) concrete
 - b) special alloys
 - c) ductile reinforced concrete
 - d) None of the above

7. **Ductile reinforced concrete is a better choice than structural steel:**
- a) because of high resistance and mass properties
 - b) ease of construction
 - c) flexibility
 - d) None of the above
8. **The bomb used in the Oklahoma City explosion was:**
- a) an ANFO bomb
 - b) TNT
 - c) nitroglycerine
 - d) dynamite
9. **Another common explosive is:**
- a) TNT
 - b) C-4
 - c) Sentex
 - d) All of the above
10. **A pressure wave transient is commonly known as a:**
- a) attack
 - b) explosion
 - c) blast wave
 - d) None of the above
11. **When blast waves strike an object, they are:**
- a) absorbed
 - b) reflected
 - c) transmitted
 - d) None of the above
12. **After blast waves strike an object, the initial peak pressure is:**
- a) amplified
 - b) slightly increased
 - c) diminished
 - d) None of the above
13. **The increase in pressure from the explosion depends upon:**
- a) the intensity of the blast
 - b) the angle of incidence of the blast wave to the reflecting surface
 - c) the type of blast wave under consideration
 - d) All of the above
14. **An alternative to strengthening the structural design is:**
- a) detection of the explosive
 - b) decreasing the standoff distance
 - c) less detection
 - d) None of the above

15. **Blast design involves:**
- a) strengthening the structure
 - b) increasing standoff distance from the bomb
 - c) accepting higher levels of risk
 - d) All of the above
16. **Economic blast resistance design requires:**
- a) a well-distributed load
 - b) a redundant lateral load resistant system
 - c) ductile connections to undergo large inelastic rotations and not fall
 - d) All of the above
17. **The essential requirement of blast design:**
- a) is reducing glass damage
 - b) is reducing fire
 - c) is preventing the collapse of floors above the first story column
 - d) None of the above
18. **Upper floors in a damaged building will be:**
- a) supported by the ground floor
 - b) supported by the first beam above the first floor
 - c) supported by the broken concrete on the first floor
 - d) None of the above
19. **The General Services Administration required:**
- a) increased security design criteria in 1993
 - b) increased security design criteria in 1995
 - c) increased security design criteria in 1997
 - d) increased security design criteria in 1999
20. **Figure 4 represents a typical framing plan for:**
- a) a court building project
 - b) the Pentagon
 - c) future federal buildings
 - d) None 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 *** U192 BLAST DESIGN OF STEEL STRUCTURES TO PREVENT PROGRESSIVE COLLAPSE	<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.

