



UNIVERSITY OF MINES AND TECHNOLOGY, TARKWA
SECOND SEMESTER EXAMINATIONS, MAY 2019

COURSE NO: ES 376

COURSE NAME: FIRE AND ROAD SAFETY

CLASS: ES 3 TIME: 3 HOURS

Name: _____ Index Number: _____

Attempt all questions in Section A, B and C

Section A [15 Marks]

1. Which fire extinguisher is identified by the colour “yellow”?
 - a. Wet Chemical
 - b. Dry Powder
 - c. Carbon Dioxide
 - d. Aqueous film forming foam
2. All the following are not accepted as means of escape except
 - a. Corridors
 - b. Escalators
 - c. Lowering lines
 - d. Revolving doors
3. What is the fourth element required to sustain a fire once it starts
 - a. Heat
 - b. Hydrogen Sulphide
 - c. Benzene
 - d. Chemical Reaction
4. What is the second stage of fire risk assessment?
 - a. Identify the fire hazards
 - b. Monitor and review the fire risks.
 - c. Decide on the level of risk.
 - d. Identify the people who are at risk
5. Which of the following best describes a fire assembly point?
 - a. The designated place where fire extinguishers are kept
 - b. An area that has a potential fire risk
 - c. It's the area you should assemble if there's a fire
 - d. It's an area you must avoid if there's a fire
6. Which of the following is NOT a class A material?
 - a. Wood

- b. Paper
 - c. Propane
 - d. Plastic
7. Who is allowed to activate a fire alarm onsite?
- a. Only a manager
 - b. Only a supervisor
 - c. Safety representatives
 - d. Anyone who discovers a fire
8. Foam fire extinguishers put out a fire by:
- a. Starving the fire
 - b. Cooling the fire
 - c. Smothering the fire
 - d. Containing the fire
9. The acronym for proper use of a fire extinguisher is:
- a. PAST
 - b. PALS
 - c. PASS
 - d. PASE
10. Which of the following is not a method of fire detection?
- a. Smoke detection
 - b. Flame detection
 - c. Fuel detection
 - d. Heat sensing
11. According to the US classification of fire, energized electrical equipment are classified as
- a. Class A
 - b. Class B
 - c. Class C
 - d. Class D
12. What is the hazardous category of a petroleum liquid with a flash point of ≥ 23 °C and ≤ 60 °C
- a. Combustible Liquid
 - b. Flammable Liquid
 - c. Highly Flammable Liquid
 - d. Extremely Flammable Liquid

13. What is the required crash avoidance space for a car driving at 100 km/h
- 50 m
 - 84 m
 - 67 m
 - 92 m
14. Which class of fire will titanium and aluminium fall under?
- Class D
 - Class K
 - Class A
 - Class C
15. Which of the zones of aggressive driving describes a driver making visible obscene gesture at another?
- Violent zone
 - Hostile zone
 - Minor mayhem zone
 - Major mayhem zone

Section B [10 Marks]

Indicate whether the statements in this section is True or False

16. Smoke kills more people than the fire itself.
17. Radiation is the transfer of heat energy, which heat solids, liquids and gases encountered in its path.
18. After a fire event at the workplace, you can return when you see that the fire has died down.
19. Majority of road accidents are caused by environmental factors.
20. When you discover fire at the workplace, the first thing to do is to fight the fire.
21. Class B fires are those fires that occur involving paper and wood.
22. Education, Environment and Engineering represent the 3E interventions for road accident.
23. The first thing to do when you discover a fire is to tackle the fire.
24. After using a CO₂ extinguisher, the nozzle tends to be very cold.
25. The risk of road accident may change due to environmental factors.

Section C [25 Marks]

Answer Question All Questions in This Section

1. A new factory and site is about to be built. As the health and safety officer you have been tasked with providing advice for the control measures required for safe workplace transport operations.
 - 1a) Summarize the advice you would provide with regard to the design of the site. **[4 Marks]**
 - 1b) Describe 4 items you would include in the safe vehicle travel policy. **[2 Marks]**
 - 1c) Outline 4 benefits of safe vehicle travel policy. **[2 Marks]**
 - 1d) List the broad categorization of the causes of road accident and give two examples each. **[3 Marks]**

2. A fire safety audit of a fuel service station which also host a pub has identified failings in control of ignition sources and waste management. The auditor was particularly concerned about a barbecue stand located close to one of the fuel storage tanks. He was concerned the close proximity might lead to fire incidences such as vapour cloud explosion or even BLEVE.
 - 2a) Briefly describe the phenomenon of Vapour cloud explosion. **[4 Marks]**
 - 2b) Identify ways Vapour cloud explosion could be prevented. **[2 Marks]**
 - 2c) Outline the principle of a boiling liquid expanding vapour explosion (BLEVE) **[4 Marks]**
 - 2d) Outline the effects of a BLEVE. **[2 Marks]**
 - 2e) Outline ways to manage these waste materials effectively and minimise fire risk. **[2 Marks]**

Examiners: Mr Francis Krampah