

**UNIVERSITY OF PETROLEUM AND ENERGY STUDIES**  
**End Semester Examination, April/May 2018**

**Course: Fire Risk & Control**  
**Program: M Tech- HSE / HSE spl with DM**  
**Time: 03 hrs.**

**Semester: II**

**Max. Marks: 100**

**Instructions:**

**SECTION A**

| S. No. |                                                                                                                                                  | Marks | CO  |
|--------|--------------------------------------------------------------------------------------------------------------------------------------------------|-------|-----|
| Q 1    | Ammonia has adverse effect on human health. List out various hazards with Ammonia.                                                               | 04    | CO1 |
| Q 2    | Explosion protection principles are recommend to exclude equipment and component from fire. List explosion protection principle and its purpose. | 04    | CO3 |
| Q 3    | Smoke is one of product of combustion. Brief of smoke and its harmful effects.                                                                   | 04    | CO1 |
| Q 4    | Elaborate suppression system and highlight their effectiveness in a building or workplace.                                                       | 04    | CO3 |
| Q 5    | Highlight the purpose and objective of fire safety certificate as per building regulation Act.                                                   | 04    | CO3 |

**SECTION B**

|     |                                                                                                                                                                                                                               |    |            |
|-----|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|------------|
| Q 6 | Fire safety requirements at high-rise building is major concern since execution to operation. Discuss in detail of various fire safety requirements in a high rise / modern building.                                         | 10 | CO2        |
|     | <b>OR</b>                                                                                                                                                                                                                     |    |            |
|     | Fire exit/ egress are major component considered during design of building/ industries and mainly during evacuation purposes. Justify the need of exit/ egress and their various considerations in industries/ building.      | 10 | CO2<br>CO3 |
| Q 7 | Fire load are one of the major component considered for designating fire protection facilities at work place. Brief of fire load and the major considerations recommended for effective fire protection system at work place. | 10 | CO3<br>CO4 |
| Q 8 | Based on your learning or as a safety practitioner, suggest for improvement required in sprinkler system.                                                                                                                     | 10 | CO4        |
| Q 9 | Fire acts adversely with respect to time. Discuss various stages of fire and its types.                                                                                                                                       | 10 | CO1        |

**SECTION-C**

|      |                                                                              |    |     |
|------|------------------------------------------------------------------------------|----|-----|
| Q 10 | Hoses are widely used equipment for carrying charged water for fire-fighting | 20 | CO2 |
|------|------------------------------------------------------------------------------|----|-----|

|     |                                                                                                                                                                                                           |    |            |
|-----|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|------------|
|     | purposes. Discuss in details of hoses and its types.                                                                                                                                                      |    |            |
| Q11 | Maintenance of fire protection devices/ equipment plays important role at work place and mainly during fire fighting. Discuss in detail about need of maintenance of sprinkler system and their benefits. | 20 | CO2<br>CO3 |
|     | OR                                                                                                                                                                                                        |    |            |
|     | Standpipes helps in delivering water from one place to another or respective floors. Explain in details of standpipe, their various classes.                                                              | 20 | CO1<br>CO3 |