

B.Sc Sem.-5 (F&S) Examination  
CC 3

Combustion Products & Its Effects (N)

Time : 2-30 Hours]

November-2024

[Max. Marks : 70]

**Q 1 (I) Write down various Organic Irritants with their characteristics properties and how these are generated during fire.** 7

**(ii) What is Asphyxiation? Describe how HCN and CO create the effect of asphyxiation on the human body.** 7

OR

**(i) Define following terms with suitable examples:** 7

- a) Cardiac Arrhythmia
- b) Bronchoconstriction

**(ii) What are the various products of combustion and its effects on health as toxic properties?** 7

**Q 2 (i) What is Acid Rains? How it is formed? Explain its adverse effect on environment.** 7

**(ii) How chemical smog is formed? State adverse effect of chemical smog.** 7

OR

**(i) Explain with illustration how formation of the main toxic combustion product may be predicted from knowledge of composition of material.** 7

**(ii) Explain various devices available to reduce particle emissions from environment.** 7

**Q 3 (i) How can an employers and employees help in prevention of CO poisoning?** 7

**(ii) What is Hazard Management Plan? State important recommendations referred to the hazard management plan.** 7

OR

**(i) What are the symptoms and remedial actions for CO poisoning? How it affect the human body?** 7

**(ii) Write symptoms of Smoke Inhalation and remedial actions.** 7

(P.T.O)

**Q 4** (i) What are the important actions required for the assessment of a patient who is affected due to smoke inhalation in a structure fire. 7  
 (ii) Define pulmonary ventilation and perfusion? What is its significance? 7

OR

(i) Write short note on Inhalation Burns. Give important control measures. 7  
 (ii) What are the delayed Signs, Symptoms and long-term consequences of smoke exposure among civilian victims and fire fighters? 7

**Q-5 MCQ** Attempt any seven out of twelve)

14

1. Asymptotic values means - as a variable or an expression containing a variable approaches a limit, usually zero. [True/False]
2. Isocyanates can be formed in fire when burns:
  - a. Nylons
  - b. Acrylic fibre
  - c. Polyurethane
  - d. All the above
3. Pulmonary edema can occur due to effect of :
  - a. Toxicant
  - b. Irritants
  - c. Smog
  - d. Aerosol
4. Ground-level ozone ( $O_3$ ) is one of the cause of formation of
  - a. Ozone depletion
  - b. Vehicular pollution
  - c. Toxic Smoke
  - d. Chemical Smog
5. A colourless flammable highly poisonous gas is formed by oxidation of hydrogen cyanide is known as:
  - a. Cyanogen
  - b. Phosgene
  - c. Hydrogen Sulphide
  - d. Ozone
6. An air pollution alert is needed to declare if particle concentration found beyond ..... Microgram/cubic meter.
  - a. 325
  - b. 375
  - c. 425
  - d. 500
7. Statistical analysis does not indicate a positive relation between  $NO_2$  concentration and a higher mortality rate from heart diseases and cancer. (True/False)

8. Full form of TARP : .....
9. Cardiac toxicity caused due to:
  - a. Exposure of HCN
  - b. Exposure of CO
  - c. Exposure of CO<sub>2</sub>
  - d. Exposure of Ultrafine particles
10. Chronic carbon monoxide exposure might increase the risk of developing the ..... dieses in arteries :
  - a. Anoxia
  - b. Hypoxemia
  - c. Atherosclerosis
  - d. Pulmonary Edema
11. Lactic acid is produced that leads to pH drops in the cell due to effect of :
  - a. H<sub>2</sub>S
  - b. CO
  - c. CO<sub>2</sub>
  - d. HCN
12. Inhaling steam is particularly damaging to the lungs since the low-density vapour is easily inhaled into the alveoli, causing
  - a. Atherosclerosis
  - b. Pulmonary edema
  - c. Atelectasis
  - d. (b) & (c)