

**CERTIFICATE IN RESCUE AND FIRE  
FIGHTING (CRFF)**

**Term-End Examination**      **00221**  
**December, 2011**

**BAV-007 : FIRE ENGINEERING SCIENCE AND  
EQUIPMENTS**

*Time : 3 hours*

*Maximum Marks : 100*

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**SECTION - A**

Attempt all questions

1. Write *True* or *False* **1x10=10**
- (a) A centrifugal pump requires a separate priming device.
  - (b) Radiation is the transmission of heat from molecule to molecule without the molecule themselves moving out of place.
  - (c) 'Bow' line is used for rescue purpose.
  - (d) Coupling of a hose is meant to control the stream to jet, directed to the fire as the circumstances require.
  - (e) Extinguishing the fire by eliminating or diluting the availability of oxygen is known as starvation.

- (f) High expansion foam expands above 200 times.
- (g) Runway is a paved path used for take off and landing of the aircraft.
- (h) The air in the atmosphere contains almost 71% by volume of oxygen.
- (i) Impellers of a centrifugal pump convert velocity energy to pressure energy.
- (j) Splints are used for transporting casualties with back bone injury.

2. Fill in the blanks :

2x10=20

- (a) PTO means \_\_\_\_\_.
- (b) \_\_\_\_\_ means removal of oxygen.
- (c) DCP extinguish the fire by \_\_\_\_\_.
- (d) Nozzle discharge L = \_\_\_\_\_.
- (e) 35°C = \_\_\_\_\_ °F.
- (f) Flammable limit of LPG is \_\_\_\_\_ to \_\_\_\_\_.
- (g) Mildew in a hose is caused by \_\_\_\_\_.
- (h) Operating time of 9 Ltr water extinguisher is \_\_\_\_\_.
- (i) Class C fire is fire involving \_\_\_\_\_.
- (j) DCP can be used for \_\_\_\_\_ and \_\_\_\_\_ class of fire.

## SECTION - B

1. Answer *any three* questions among the following.  $5 \times 3 = 15$
- (a) What are the difference between delivery hose and suction hose ?
  - (b) What do you mean by breaching ? What are the types of breaching generally used in fire service ?
  - (c) Write short notes on (i) Round turn and two half hitches. (ii) Clove hitch.
  - (d) For extinguisher a fire in a computer room, what type of extinguisher you prefer ? Why ?
  - (e) Explain the purpose and function of 'Demand Valve' in a BA set.
  - (f) Write the pitching hints of extension ladder.
2. Answer *any five* questions among the following.  $8 \times 5 = 40$
- (a) What are the important points to be kept in mind while attending rescue and fire fighting of a military aircraft ?
  - (b) Write the standard test of rounds of extension ladder.
  - (c) Name different types of markings on runway and taxi track.
  - (d) Briefly explain the characteristics of hose.

- (e) Why water is considered as the most efficient media for fire extinction ?
- (f) What do you mean by fixed fire fighting installations ? Write short notes on carbon dioxide installation.
- (g) What do you mean by priming ? Explain the function of a reciprocating priming system.
- (h) Explain the purpose and function of warning whistle and bypass valve of a BA set.
- (i) What are the differences between suction and delivery hose ?
- (j) Explain the aircraft access and evacuation system.

## SECTION - C

Attempt *any one* question given below.

1. (a) Explain the extinction mechanism of DCP and write down its advantages and disadvantages. 8
- (b) Draw a neat diagram of a triage area and collection area set up including priorities and explain where the various symbols are adopted to the priorities. 7

OR

2. (a) What are the various points to be kept in mind while positioning and fighting an aircraft fire ? 8
- (b) A ACFT stationed at a rectangular tank measuring  $3 \times 4 \times 4$  Mtr full of water supplied through a 20 mm dia nozzle on a fire. If the pump is operating at a pressure of 7 bar, find out the discharge through the nozzle and duration for which water can be supplied before the tank is empty. Assume pump pressure as nozzle pressure. 7