Course : Fire Engineering III (Material & Fire Control)   **Semester: VI**
Program: B Tech- Fire & Safety Engineering
Time: 03 hrs.   **Max. Marks: 100**

Instructions:

SECTION A

S. No.	Question	Marks	CO
Q 1	Brief of mechanical loading and its consideration in building fire safety design.	04	CO1
Q 2	Elaborate full scale and scale down testing methods used in fire resistance material testing.	04	CO1
Q 3	List out various types of fire resistant board used and its selection criteria.	04	CO2
Q 4	Brief of guniting or shotcreting used as a repair technique maintaining the structural integrity.	04	CO3
Q 5	Brief of ventilation control fire and its effectiveness.	04	CO3
SECTION B			
Q 6	Explain principle of calculation of fire resistance limit of structural members. Also, discuss various factor influencing coefficient of fire resistance of any structural member	10	CO1 CO2
Q 7	Discuss in detail about preliminary survey. Highlight the effectiveness of preliminary survey. OR	10	CO2 CO5
	Feasibility of repair and reparability techniques are the major aspect in connection to structural damage due to fire. Elaborate on feasibility of repair, repair techniques, and its purpose.	10	CO3
Q 8	Wood is one of major component used in a building. Discuss in detail about effect of temperature on wood.	10	CO1
Q 9	Various types of fire resistant board are available in building protecting structure from severe fire and the same time increasing fire duration. Name of all these boards and list out importance of using gypsum board.	10	CO4
SECTION-C			
Q 10	Identification or demarcation of fire areas plays important role in functional planning of any building or zone. Brief about fire zone, its types and role of concerned authority involved in functional planning and approval of fire zones.	20	CO3 CO5
Q 11	Fire resistance structure elements are to be tested before selecting them for in use. Discuss all different aspect in connection of testing of fire resistance structure elements OR	20	CO2 CO3 CO4

| | A building has a square plan with a floor area of 400 m² and has windows on opposite walls. If the fire load of the building is 75 kg/m² with a window opening of 25%, 50% & 100% and the floor to ceiling height as 3.0m, calculate the fire resistance period required for the building. | **20** | **CO3** **CO4** |