



- (A)  $-PL/8$  (B)  $+PL/8$  (C)  $-wL^2/12$  (D)  $+wL^2/12$
- n) Flyover bridges with large span is made with (A) Pre tensioned (B) Post tensioned (C) Both are right (D) Both are wrong 1

**Attempt any four questions from Q-2 to Q-8**

- Q-2 Attempt all questions (14)
- (A) Explain the fundamental concepts of actions and displacements 07
- (B) What are the essential Features of Flexibility Method? Discuss in brief 07
- Q-3 Attempt all questions (14)
- (A) State Muller Breslau Principal and sketch Qualitative ILD for 3 span Continuous beam. 07
- Draw ILD for S.F. and B.M. at section middle of span for a two span beam. 07
- Q-4 Attempt all questions (14)
- (A) Discuss advantages and disadvantages of Prestressed Concrete. 04
- (B) Differentiate Pre tensioned with Post tensioned techniques 04
- (C) A straight Pre-tensioned Concrete beam 18 m long with a C/S of 400 mm X 400 mm is concentrically pre-stressed with  $900 \text{ mm}^2$  of steel wires which are anchored to the bulkheads with a stress of  $1250 \text{ N/mm}^2$ . Find out Loss of Pre-stress due to elastic shortening of concrete taking modular ratio as 6. 06
- Q-5 Attempt all questions (14)
- (A) Explain how curved beams differ from usual straight beam. 07
- (B) A beam circular in plan is loaded UDL of 140 KN/m inclusive of self weight. the radius of the beam is 5 m. The beam is supported by 6 symmetrically placed columns. Draw S.F.D and B.M.D. for one of the span. 07
- Q-6 Attempt all questions (14)
- (A) For a square beam section as per **figure:1** find shape factor and fully plastic moment. Take  $f_y=500 \text{ MPa}$  07
- (B) A fixed beam of 6 m span carries a UDL of 175 KN/m over the left half of the span. Determine the fully plastic moment along with plastic section modulus for the beam.  $f_y = 500 \text{ MPa}$
- Q-7 Attempt all questions (14)
- (A) Discuss various types of stresses to be considered in spherical dome design. 04
- (B) Enlist different utilizations of Dome 04
- (C) Analyze the continuous beam shown in **figure:2** by Stiffness method. 06
- Q-8 Attempt all questions (14)
- (A) Differentiate Flexibility method with Stiffness method 07
- Formulate flexibility matrix for the actions for a beam shown in **figure:3** 07



Q: 6 (A)

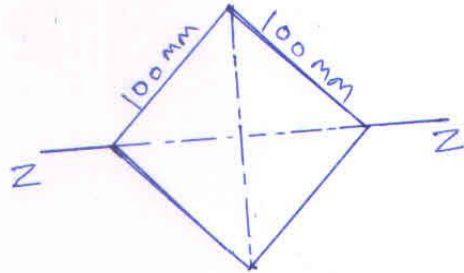


Figure : 1

Q: 7 (B)

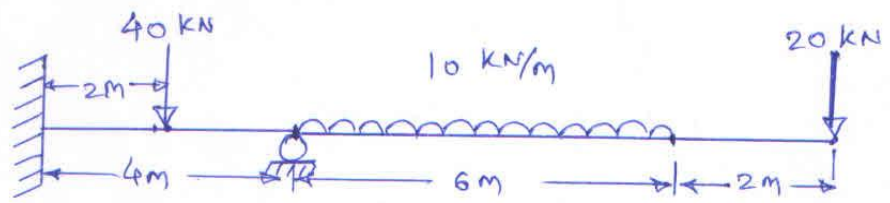


Figure : 2

Q: 8 (B)

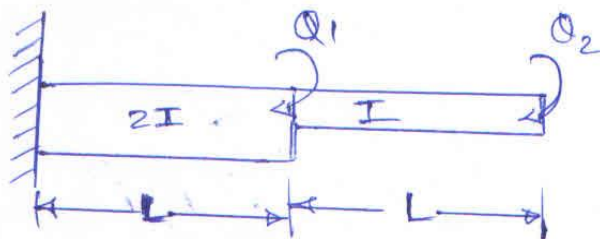


Figure : 3