

ARUNACHAL PRADESH PUBLIC SERVICE COMMISSION

CIVIL ENGINEERING

TIME: 3 Hours

Total Marks: 200

[Section A: 100 Marks + Section B: 100 Marks]

Notes: Answer ten questions selecting any five questions from each section.

Section A

- Q.1 a. What is efflorescence in bricks? What are its causes and remedies? 5  
b. Explain sulphate attack in concrete and how it can be prevented? 5  
c. What precautions should be taken while storing cement? 5  
d. What do you mean by normal consistency? What is its significance? How is it tested? 5
- Q.2 a. A bar of 10 cm dia and 500 cm long is acted upon by a load of 10 tonnes. It is found to extend 10 cm. Find i) Stress ii) Strain iii) Young's Modulus iv) Work Done. 6  
b. A simply supported beam 10 m long supported on both ends carrying a uniformly distributed load of 5 kN/m over a length of 3 m starting from left support and also an anticlockwise moment of 8 kN-m at a distance 6 m from the left support. Draw the shear force and bending moment diagrams. 6  
c. A beam of rectangular section has a span of 5 metres and simply supported at its ends. It is required to carry a total load of 50 kN uniformly distributed over the whole span. Find the values of the breadth and depth of the beam, if maximum bending stress is not to exceed 7 MPa and maximum deflection is limited to 9.5 mm. Take modulus of Elasticity E is 10.5 GPa. 8
- Q.3 a. Sketch and state the uses of the following 8  
i. Stretcher bond  
ii. Queen Closer  
iii. English bond  
iv. Flemish bond

