Dr Chander Pal

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -1 EXAMINATION- September 2016

B.Tech-III Semester

COURSE CODE: 10B11CE311 MAX. MARKS: 15

COURSE NAME: MECHANICS OF SOLIDS

COURSE CREDITS: 04 MAX. TIME: 1Hr

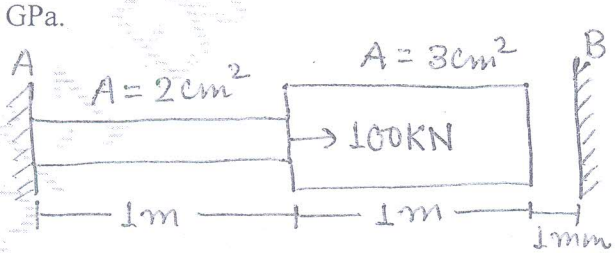
Note: All questions are compulsory. Carrying of mobile phone during examinations will be treated as case of unfair means

Q.1. **(i)** Draw the stress – strain diagram of mil steel and mention different zone of the diagram.

(ii) Explain creep and resilience of a material and its practical application. **(2+2 = 4)**

Q.2. A brass bar having cross section area of 10 cm^2 is subjected to axial force as shown below. Find the total elongation in the bar. E = 105 GPa **(3)**

Q.3. For the given bar find the unknown support reactions. The gap between support B and the bar is 1 mm. E = 200 GPa. **(3)**



Q.4. A non uniform circular bar of length L and diameter 'd' and 'D' at both the end is rotated by an angular velocity ω about axis AA'. Find the total elongation in the bar. **(5)**