

**SUBJECT CODE NO:- P-371**  
**FACULTY OF ENGINEERING AND TECHNOLOGY**  
**S.E.(CIVIL) Examination May/June 2017**  
**Theory of Structure-I**  
**(Revised)**

[Time: Three Hours]

[Max.Marks:80]

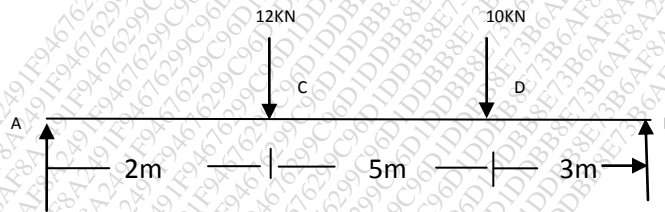
Please check whether you have got the right question paper.

N.B

- i) Q.no.1 from section A & Q.no.6 from section B are compulsory.
- ii) Attempt any two questions from remaining of each section

Section A

- Q.1 Write a note on following
- 1) Conjugate beam method 04
  - 2) Advantages of fixed beam 03
  - 3) Willot diagram 03
- Q.2 A girder of uniform section is loaded as shown in figure:01. Calculate deflection of beam under the Load C. Take  $E=200\text{Gpa}$  &  $I=120 \times 10^6 \text{ mm}^4$  15



- Q.3 A crane shown in figure:02 has cross sectional area of the tie & Jib as  $2500\text{mm}^2$  &  $5000\text{mm}^2$  respectively. Determine vertical deflection at C when a load of 250kN is suspended from it. Take  $E=200\text{GPa}$  15

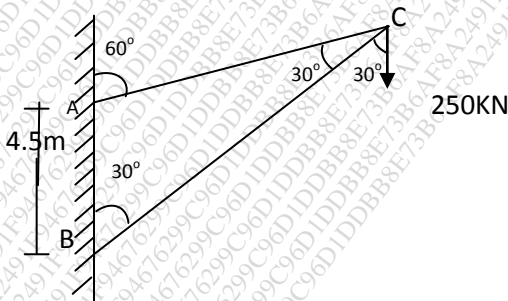


Fig:02

- Q.4 Draw the bending moment diagram for a fixed beam shown in fig.03 15

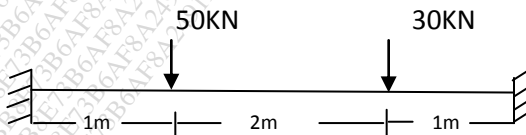


Fig.03

Q.5 A plate girder simply supported at end with span 12m consisting of web plate 600mm X12mm & flange plate 300mm X 18mm for each flange. The girder carry's a udl of 45 KN/m using 10mm fillet weld. Find the size of weld required for connecting flange plate to the web plate at support. The permissible stress ( shear ) in weld are  $102.5N/mm^2$  15

Section B

Q.6 Write a note on following 04

- 1) Calpeyron 's three moment theorem
- 2) Three hinged stiffening girder
- 3) Linear Arch

Q.7 For a continuous beam shown in fig.4 draw the SFD & BMD 15

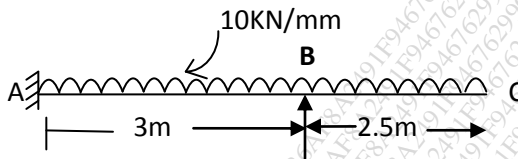
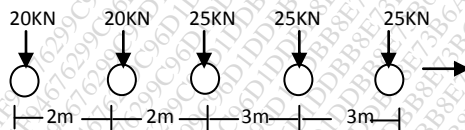
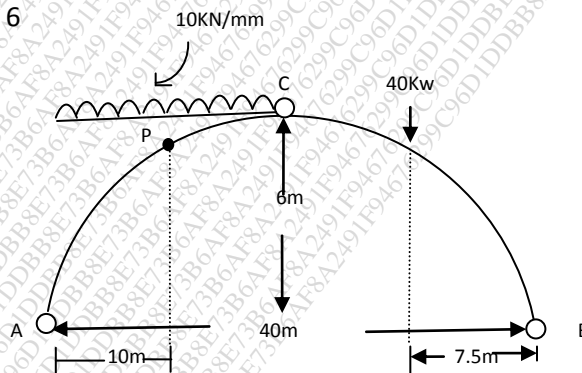


Fig.4

Q.8 A locomotive with wheel loads show in fig.5 pasess over a girder of span 26m find the maximum bending moment under the central load 15



Q.9 Determine normal thrust, radical shear & bending moment at P for the three hinged parabolic arch loaded as show in fig 6 15



Q.10 A superior bridge of span 150m has stiffened by three hinged stiffening girder. The cable has a central dip of 12m. the width of load way is 7m .The dead need is  $8.0kN/mm^2$  of floor area & line load of  $15kN/mm^2$ , cover left hand half span. find shear force & bending moment at loaded Quarter part also determine max. tension in cable 15