regular hexagon, towards the other five angular points, taken in order. Find the magnitude and direction of the resultant force. 7

2. (*a*) State law of moment. 2

(*b*) *ABCD* is a rectangle, in which $AB = CD = 25$ cm and $BC = DA = 45$ cm. Forces of 150 N each act along *AB* and *CD* and forces of 200 N each act along *BC* and *DA*. Find the resultant moment of two couple. 5

(*c*) A beam *AB* of length 5m supported horizontally at *A* and *B* carries point loads of 5KN, 8KN and 3 KN at a distance of 1m, 2m and 4m from the support A respectively. Find the reactions at *A* and *B*. 7

3. (*a*) State Lami's theorem. 2

(*b*) A cord supported at *A* and *B* carries a load of 10 KN at '*D*' and a load of *W* at 'c' as shown

hour suddenly applies brakes and comes to a stop after skidding 50 m. Determine : 7

(*i*) time required to stop the car

(*ii*) the coefficient of friction between the tyres and the road.

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