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Examination: [2017 SUMMER](#)

Que.No	Question/Problem	marks
Q 1a)(ii)	Cotter Joint	8
Q 2 a)	Design a knuckle joint to transmit 150 KN. The design stresses may be taken as 75 MPa in tension, 60 MPa in shear and 150 MPa in compression.	8
Q 2c)(i)	Why are bushes of softer material inserted in the eyes of levers?	8
Q 3 b)	Design a foot brake lever from the following data: Length of lever from C.G. of the spindle to the point of application of the load = 1 meter. Max. load on the foot plate = 800 N Overhang from the nearest bearing = 100 mm Permissible tensile and shear str	4

Examination: [2017 WINTER](#)

Que.No	Question/Problem	marks
Q 1 f)	Give two applications of knuckle joint.	2
Q 2 a)	Explain various failures to be considered in designing a cotter joint along with the necessary sketches and strength equations.	8
Q 3)	Fig.1Show of hacksaw The belt is assembled with tensoion	8

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Que.No	Question/Problem	marks
Q 1 ii)	Write the design procedure for turn buckle. (Any four steps)	4
Q 2a)(ii)	Why taper is provided on cotter ? State recommended values of taper.	8

Que.No	Question/Problem	marks
Q 2 b)	Draw neat sketch showing the details of cotter joint. State strength equations for each component with suitable failure cross-sectional area.	8
Q 3 b)	Draw a neat sketch of bell crank lever. Enlist steps in designing the bell crank lever	4

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Que.No	Question/Problem	marks
Q 1a)(ii)	Write the design procedure of knuckle joint.	4
Q 2 a)	Explain with the help of neat sketches three basic types of lever. State one application of each type.	8
Q 2 b)	Explain with the help of neat sketches, the design procedure of a square sunk key	8
Q 2c)(ii)	State two applications each of cotter joint and knuckle joint.	8
Q 3 b)	Design single cotter joint to transmit 200 kN. Allowable stresses for the material are 75 MPa in tension and 50 MPa in shear.	4

Examination: [2015 WINTER](#)

Que.No	Question/Problem	marks
Q 1a)(ii)	Differentiate between Knuckle joint and Cotter joint.....	4
Q 3 b)	Design an offset link for a load of 1000 N. Maximum permissible stress in tension for link material is 60 N/mm². Assume $b = 3t$ for rectangular cross section of the link.	4
