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Apply

Examination:

Que.No	Question/Problem	marks
Q 4a)(iii)	State the effect of keyway on the strength of the shaft............	4

Examination: 2017 SUMMER

Que.No	Question/Problem	marks
Q 1a)(iii)	A hollow shaft for a rotary compressor is to be designed to transmit maximum torque of 4750 N-m. The shear stress in the shaft is limited to 50 MPa. Determine the inside outside diameter of the shaft if the ratio of inside to outside diameter of the shaft	8
Q 1b)(ii)	Design a bushed pin type flexible coupling for connecting a motor shaft to a pump shaft for the following service conditions. Power to be transmitted = 40 KW. Speed of the motor shaft = 1000 RPM. Diameter of the motor shaft = 50 mm Diameter of the pump sh	6
Q 2b)(ii)	Draw neat sketch of a protected type flanged coupling showing all details.	8
Q 3 e)	A shaft 30 mm. diameter is transmitting power....................	4
Q 4a)(iii)	Explain effect of keyways on strength of shaft. Name one type of key which does not affect strength of shaft	4
Q 4b)(i)	(i) Explain different causes of gear tooth failure and suggest possible remedies to avoid such failures	6

Examination: 2017 WINTER

Que.No	Question/Problem	marks
Q 1 j)	State four types of keys.	2

Que.No	Question/Problem	marks
Q 1 m)	What are the requirement of a good coupling?	2
Q 3 b)	In a rigid flaninged complended to transmit 20K.W at 700.r.p.m	8
Q 3 c)	What are the considerations in design of dimensions of formed and parallel key having rectangular cross section?	4
Q 6 a)	Effect of Keyway on strength of shaft	8
Q 6b)(ii)	Design consideration while designing the spur Gear	8
Q 6c)(ii)	Classification of shaft coupling :	8

Examination: 2016 SUMMER

Que.No	Question/Problem	marks
Q 1b)(ii)	The shaft running at 125 r.p.m. transmits 440 kW. Find the diameter of shaft (d) if allowable shear stress in shaft material is 55 N/mm2 and the angle of twist must not be more than 1 on a length of 16(d). The modulus of rigidity G = 0.80 105 N/mm	6
Q 1 iii)	State any four factors to be considered while selecting the coupling.	4
Q 2 c)	A belt pulley is fastened to a 90 mm diameter shaft running at 300 r.p.m. by means of a key 20 mm wide and 140 mm long. Allowable stress for the shaft and key material are 40 N/mm2 in shear and 100 N/mm2 in crushing. Find the power transmitted and the dep	8
Q 3 c)	Prove that, for a square key, the permissible crushing stress is twice the permissible shear stress.	4
Q 3 d)	Why a coupling should be placed as close to a bearing as possible	4
Q 4a)(ii)	State the effect of key-way on the strength of shaft with suitable diagram	4
Q 4b)(ii)	State any six design considerations while designing the spur gear	6

Examination: 2016 WINTER

Que.No	Question/Problem	marks
Q 1a)(iii)	Draw a neat sketch of flexible flange coupling and label its main components.	4

Que.No	Question/Problem	marks
Q 1b)(ii)	A hollow shaft is required to transmit 50 kW power at 600 rpm. Calculate its inside and outside diameters if its ratio is 0.8. Consider yield strength of material as 380N/mm2 and factor of safety as 4.	6
Q 3 c)	State the 'Lewis equation' for spur gear design. State SI unit of each term in the equation.	4
Q 3 e)	Prove that for a square key sc = 2t where sc = crushing stress t = shear stress.	4
Q 4a)(iii)	State four important modes of gear failure.	4
Q 4b)(i)	Explain the design procedure of shaft on the basis of torsional rigidity. State the equation with SI units. State two applications of this approach.	6

Examination: 2015 WINTER

Que.No	Question/Problem	marks
Q 1a)(iii)	Write Lewis equation for strength of gear tooth. State the meaning of each term	4
Q 1b)(ii)	A shaft 1000 mm long is supported between two bearings. A pulley of 250 mm	6
Q 2 a)	Explain the design procedure of handlever with neat sketch.	8
Q 2 b)	Explain the design procedure of bush pin type flexible coupling with neat sketch	8
Q 2c)(ii)	Design ''C'' clamp frame for a total clamping force of 20 kN............	8
Q 3 c)	Prove that for square key equally strong in shear and crushing, ...	4
Q 3 e)	How keys are classified? Give detailed classification of keys with neat sketches; also state their applications.	4
Q 4b)(i)	State the different modes of failure of gear teeth and their possible remedies to avoid the failure.	6