SET 02/03

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Internal Assessment Test 2 –June. 2022

Sub:	Design of Machine Elements - 2					Sub Code:	18ME62	Branch:	Mech
Date:	09.06.2022	Duration:	90 min's	Max Marks:	50	Sem/Sec:	VI/A&B		OBE

Answer Any TWO Questions
Machine design Data handbook is permitted

		MARKS	CO	RBT
1	A cast steel spur gear pinion having 21 teeth and rotating at 1500 rpm is required to transmit 9 kW to a high grade CI gear to run at 500 rpm. The teeth are 14 ½ ° involute form. Design the gears completely.	[25]	CO2	L3
2	Design a pair of steel spur gears to transmit 12 kW at 1200 rpm of pinion. The velocity ratio required is 4:1. The pitch line velocity of gears not to exceed 12 m/s.	[25]	CO2	L3
3.	A differential band brake has an operating lever 240 mm long. The ends of the band are attached at 40 mm and 120 mm on either side of the pivot. The drum diameter is 600 mm. Arc of contact is 300°. Design the brake to absorb 15 kW at 200 rpm.	[25]	CO3	L3

C.I **C.C.I** **HOD**

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Interest Tables are permitted

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Scheme of Evaluation

Q.No	Scheme	Marks
1.	Identifying Weaker member	4
	Design based on Power	4
	Design based on Lewis equation	4
	Dimensions (Module and facewidth)	3
	Dynamic load	4
	Wear load	4
	Surface hardness of pinion and gear	2
2.	Identifying Weaker member	4
	Design based on Power	4
	Design based on Lewis equation	4
	Dimensions (Module and facewidth)	3
	Dynamic load	4
	Wear load	4
	Surface hardness of pinion and gear	2
3.	Torque	2
	Tensions (T1 and T2)	3
	CW rotation – Finding F	4
	CCW rotation – Finding F	4
	Design of Band	4
	Design of Brake lever	8

Solutions Key

1.