Ref No. : EX/PG/Met IM/T/127A/2019

Subject : Steel Technology

Examination : M-Met-Engg, Industrial Metallurgy, 2nd Semester, 2019

Metallurgical & Material Engineering Department

		Answer to the following questions.	Marks
1		Diffentiate between the followings (any five)	5 X 4
	a)	- Direct Reduction Process & Smelting Reduction Process of Ironmaking	
	b)	- Pneumatic Process & Slag Transfer Process of Steelmaking	
	c)	- Recovery Coke Oven & Non Recovery Coke Oven	
	d)	- Coal based Sponge Iron & Gas based Sponge Iron	
	e)	- Electric Arc Furnace & Induaction Furnace (in steelmaking)	
	f)	- Greenfield Expansion & Brownfield Expansion of Steelplant	
	g)	- LD Process & LDAC Process	
2		Write short notes on the followings (any five)	5 X 5
	a)	- Blast Furnace Productivity	
	b)	- Role of Coke in Blast Furnace Ironmaking	
	c)	- HBI	
	d)	- Corex Process	
	e)	- Tonnage Grade & Speciality Grade Ferro Alloys	
	f)	- Different Raw Materials of Steelmaking	
3		Answer the followings (any five)	5 X 5
	a)	Define reducibility of Iron Ore. Name six factors on which this is dependant on	
	b)	Explain why AOD/VOD is essential for conventional Stainless Steel Production.	
	c)	Explain how Slip & Flooding take place in Blast Furnace Ironmaking	
	d)	State the advantages & disadvantages of Ingot Casting Facilities over Continuous Casting Facilities in Steel Plant	
	e)	Draw a schematic diagram of an Integrated Steel Plant	
	f)	Compare the features of Carbothermic & Aluminothermic reduction to produce ferro alloys	
4		A 'Pig Iron' producing company sells its entire pig iron (150,000 tpy) in the market. The plant consists of 3 No. of mini blast furnace & a sinter plant to cater the blast furnaces. Calculate : The size of the blast furnaces. The size of the sinter plant The net sales realization per year (in Rs. Crores) of the company Given : The productivity of the blast furnaces & the sinter plant are 2 ton/cum/day 1.25 ton/sqm/hr respectively.. Operating days per year of BF'ce & SP are 350 & 330 respectively.. The net selling price of pig iron is Rs. 15,000/ ton. Specific consumption of charge sinter in BF'ce is 1,300 kg/ton The yield of pig casting machine is 95% The ratio of charge sinter to product sinter is 90%.	4+4+2
5		State & explain different physical, chemical & thermal processes that occur in different zones of Blast Furnace during Ironmaking	20
		-or-	
		Why agglomeration process is essential prior to Ironmaking? Stae the advantages and disadvantages of Sintering & Pelletisation.Process. Briefly describe the Pelletisation Process. What is Degree of Metallisation for DRI Production.	3+6+8+3