Total No.	of Questions—8]	[Total	No. of Printed Pages—3
Seat No.	91,8	3	[5459]-116
SE (Mechanical/Automobile) (II Semester) EXAMINATION, 2018			
ENGINEERING METALLURGY			
(2015 PATTERN)			
Time : T	wo Hours		Maximum Marks : 50
N.B. :- (i) Solve Question No. 1 or 2, Question No. 3 or 4, Question			
No. 5 or 6, Question No. 7 or 8.			
(<i>ii</i>) Figures to the right indicate full marks.			
	(iii) Draw neat, well	labelled sket	ch wherever necessary.
1. (<i>a</i>)	Compare Steel and	ast Iron on t	the basis of composition,
	properties and applica	tion.	[4]
<i>(b)</i>	State whether the following statements are True or False and		
	justify your choice co	rrectly :	[4]
	(1) Retained Austanite is a useful phase		
	(2) Martensite is a	soft phase.	a 209.
(c)	Differentiate between T	'ool Steel and	Plain Carbon Steel on the
	basis of composition, p	properties, use	s, cost and examples. [5]
		ć	
		Or	
2. (a)	Is etching essential	every time ?	Explain with suitable
	example.	2 Ac	[4]
		×	Р.Т.О.

P.T.O.

- (b) What is Austenite to Pearlite transformation ? Explain with suitable figure. [4]
- (c) Explain how Microscopic and Macroscopic examinations are useful in investigating failure analysis in metals. [5]
- 3. (a) State whether the following statements are True or False and justify your choice correctly : [4]
 (1) Pack carburising is most suitable for large scale of production.

(2) Tool steel requires preheating before austenitising.

- (b) Define Hardenability and explain the test with suitable figure. [4]
- (c) What is Spark Test ? Where is it applicable ? [4]

Or

- **4.** (a) Draw Iron Carbon diagram showing all details, like Temperature, Composition, Phases, Critical lines and reactions. [5]
 - (b) Differentiate between the following :
 - (1) Austempering and Martempering
 - (2) Annealing and Hardening

(On the basis of suitable figure, phases obtained, operating temperature, cooling medium and application.)

[7]

(a) Classify Cast Irons and explain why they are called as cast irons only ?
 [4]

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- What is Malleabilising Heat Treatment ? Explain the test with *(b)* suitable figure. [5]
- Write a short note on Quench Cracks in Hardening process. [4] (c)

Or

- **6**. (a)What is the importance of TTT diagrams in Heat Treatment processes ? [4]
 - Differentiate between Gray C.I. and Nodular C.I. (*b*) [4]
 - What is Sub Zero Treatment and why is it necessary ? (c)[5]
- What is HAZ ? Explain with suitable figure. 7. (a)[5]
 - State merits and demerits of Non-Ferrous metals over Ferrous *(b)* metals. [3]
 - Why are Aluminium and Copper metals known as corrosion (c)resistant ? [4]

Or

What is IS, AISI, SAE and DIN ? Explain in detail. 8. (a)[6] 9.240.2002 1911 9.240.2002 1911 What is Stellite 21 and Stellite 31? What are their advantages (*b*) and disadvantages ? [6]

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