B.TECH. 4TH SEMESTER [illegible], 2014

Answers to Short [illegible] Questions

Sect. I

Mfg. by Shaping & Joining

	A
	C
	D
	C
	A
	A
	B
	A
	B
	A

1

B.TECH. 4TH SEMESTER EXANIMATION, 2014

Answers to Short / Objective Questions

I.	A
II.	C
iii.	D
IV.	C
V.	A
VI.	A
VII.	B
VIII.	A
IX.	B
X.	A

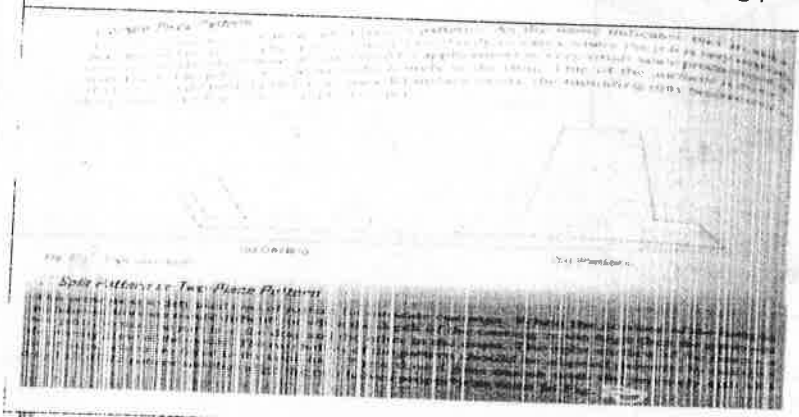
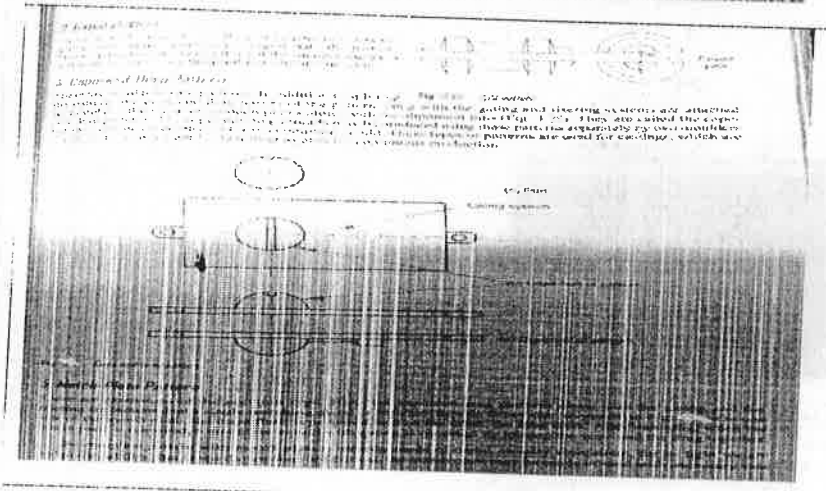
1

Any

B.Tech 4th Semester Examination, 2014
Model Answer

Subject:- Manufacturing by Shaping and Forming **Paper Code:-** 021409

Guideline 2 (a) **Sets (I) / (II)**

Replica of the casting object to be made with some modifications is known as pattern.
Pattern is used to make mould cavity by following moulding process in sand casting.



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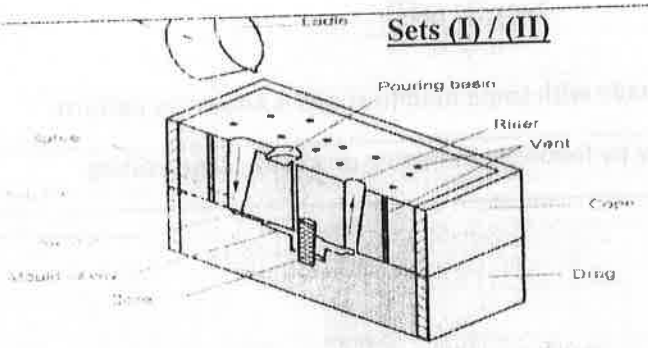
Model Answer

Subject:- **Paper Code:-**

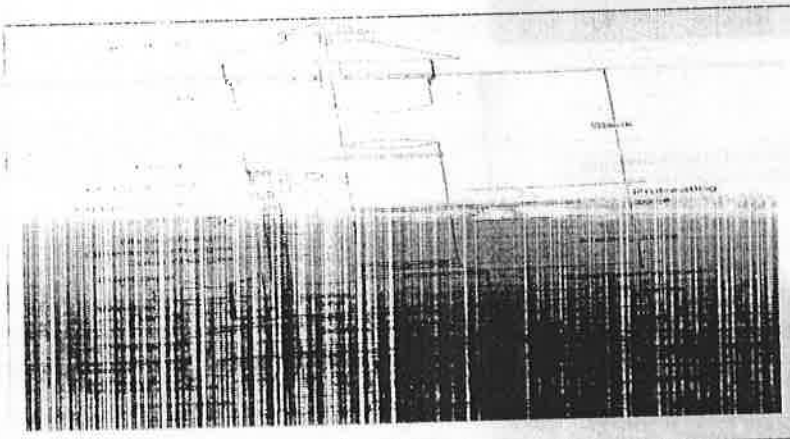
Sets (I) / (II)



Cross section of a sand mould ready for pouring

Explanation of important parts is needed.

(b)



Cupola

...with its interior lined with heat-resisting fire bricks. It rests ... proper sand bed could be prepared. This sand bed ... and the coke. Immediately above the sand bed ... called 'bot-' till the molten metal is ready for tapping ... opposite to it is the slag hole, through which the slag ...

... is connected to the air blowers supplying the requisite ... through the tuyeres. A little above the charging ... charge consisting of a combination of pig iron, ... factory lining above the charge door need not necessarily ... mush heat, ...

... the bottom are closed and a sand bed with a gentle ... bed of suitable height is prepared above the sand bed ... When the coke bed is properly ignited, alternate layers of ... through the charge door maintaining the necessary proper ...

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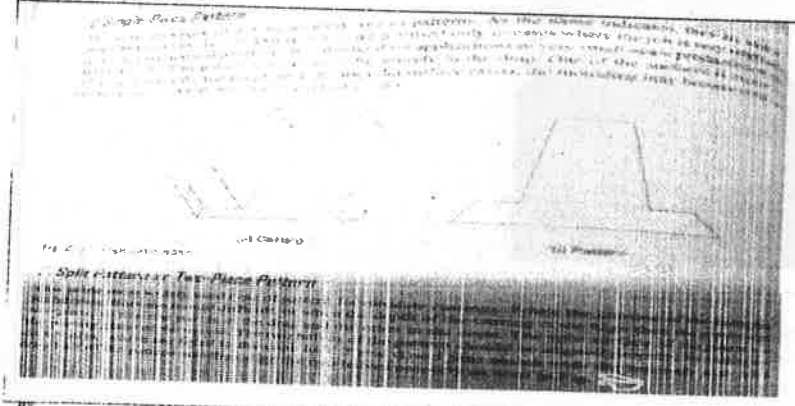
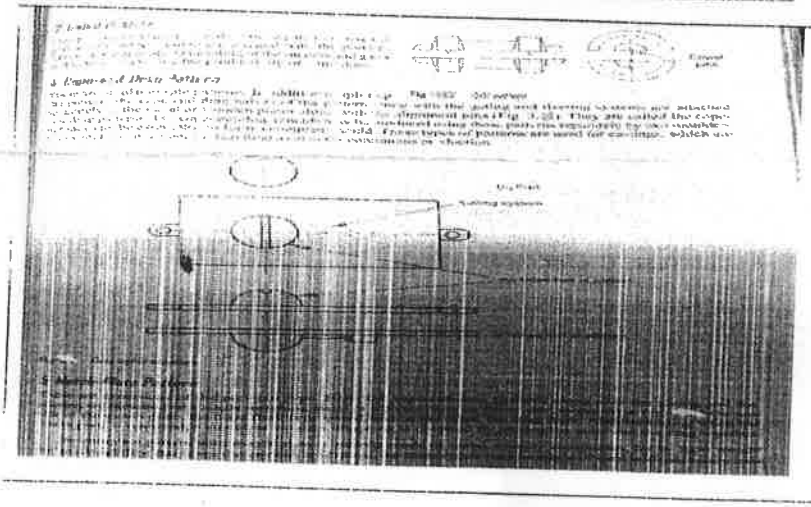

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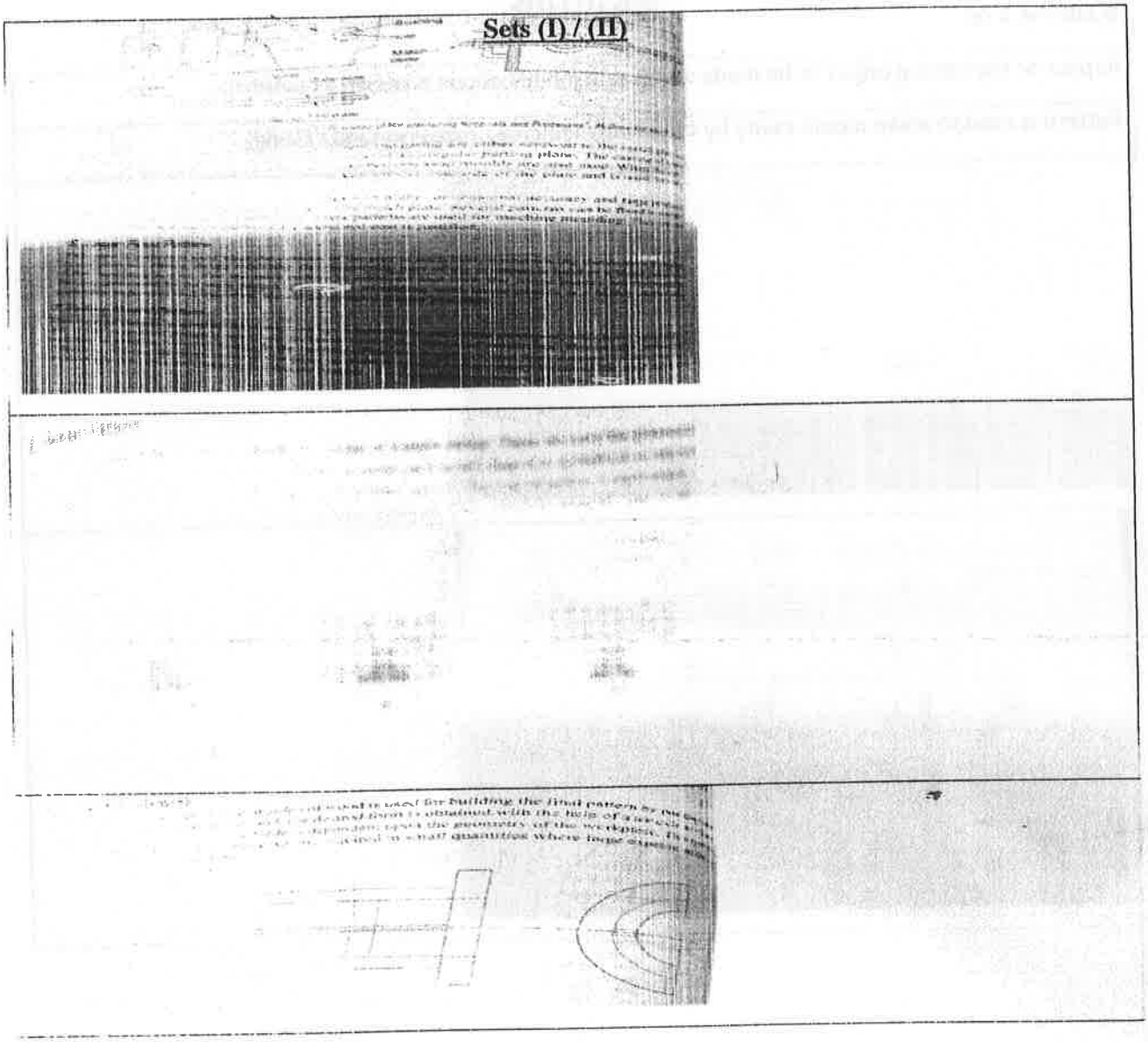
Model Answer

Subject:- **Paper Code:-**

Sets (I) / (II)



(b)

B.Tech 4th Semester Examination, 2014
Model Answer

Subject:- **Paper Code:-**

Sets (I) / (II)

... used for making cavities and hollow projections, which cannot normally be produced by ... alone. Any complicated contour or cavity can be made by means of cores so that really intricate ... can be easily obtained. These are generally made of sand and are even used in permanent moulds. In ... are surrounded on all sides by the molten metal and are, therefore, subjected to much more ... conditions and as a result, the core sand should be of higher strength than the ... sand.

The various characteristics desired of cores are the following:

(a) Green Strength — A core made of green sand should be strong enough to retain the shape till it goes ...

(b) Dry Strength — It should have adequate dry strength so that when the core is placed in the mould, it ... the metal pressure acting on it.

(c) Refractoriness — Since in most cases the core is surrounded all around, it is desirable that the core ... have a higher refractoriness.

(d) Permeability — Some of the gases evolving from the molten metal and generated from the mould may have to go through the core to escape out of the mould. Hence, cores are required to have higher permeability.

(e) Collapsibility — As the casting cools, it shrinks, and unless the core has good collapsibility (ability to decrease in size) it is likely to provide resistance against shrinkage and thus can cause hot tears.

... the ability to ... very important ...

(f) Friability — ...

... core should be smooth so as to provide a good fin...

(g) Smoothness — The surface of the core ...

... high temperatures to which a core is subjected ...

(h) Low gas Emission — ... be evolved, such that voids in the castings can be elimi...

Guideline 5 (a)

ELECTRIC ARC WELDING

Principle of Arc

[illegible]

Name of Setter: - Designation:-

Address:- Signature of Setter

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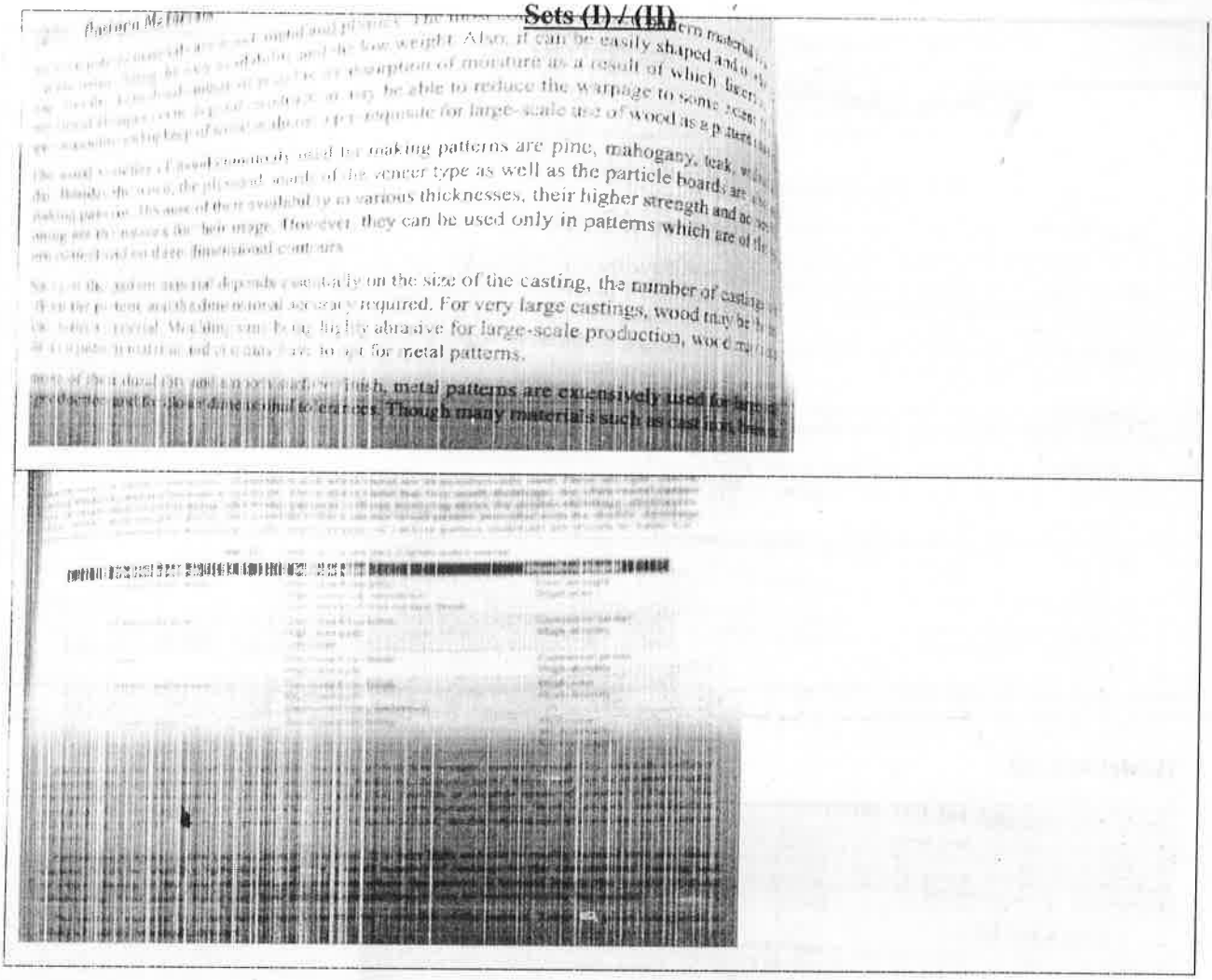
Subject:- **Paper Code:-**

Sets (I) / (II)



Guideline 3 (a)

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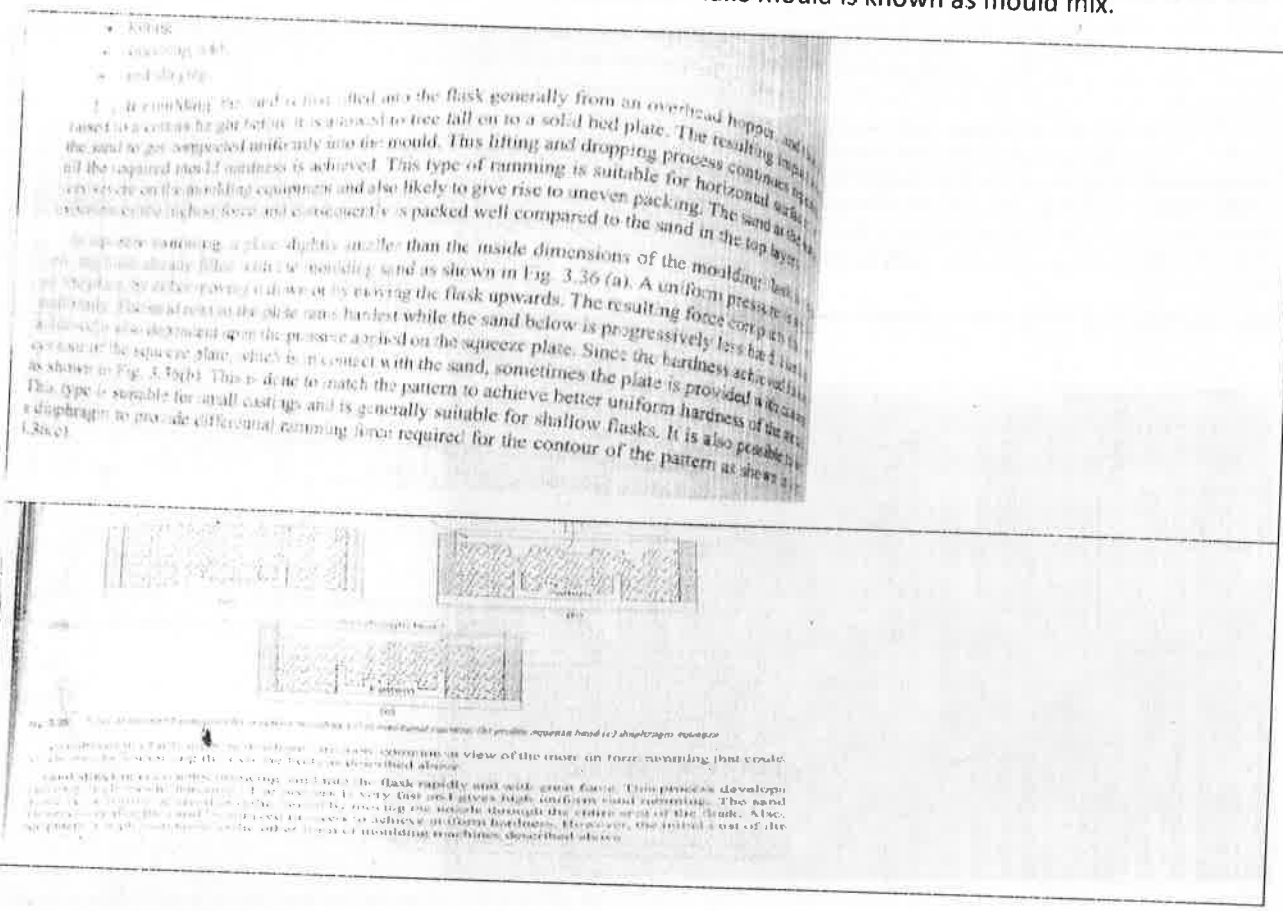
Subject:-

Paper Code:-

Guideline 4 (a)

Sets (I) / (II)

The mixture of sand, clay and moisture that is used to make mould is known as mould mix.



(b)

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Model Answer

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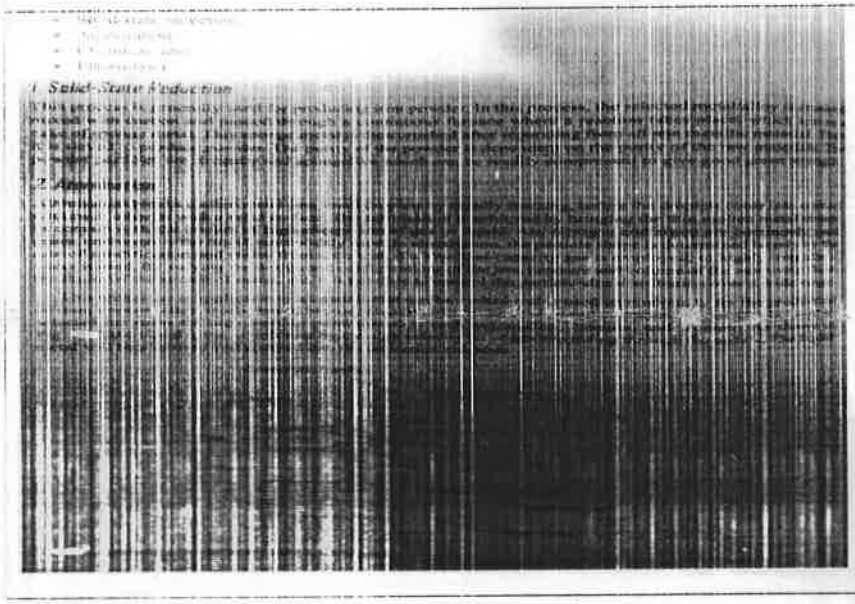
Sets (I) / (II)

Guideline 6 (a)

process in which metallic powders are heated below their melting
Powder-Metallurgy (the same process
the Powder-Metallurgy (P/M) process involves cold metal or
after blending, and then heated in a controlled atmosphere
temperature below the melting point in order to achieve the bonding of the particles to get the desired
properties. The powder-metallurgy process enables to produce parts in their final shape eliminating the need for
any additional machining. Raw material is not wasted during the processing while unusual materials or mixtures
can be utilized. It is possible to get parts with unique properties not possible by any other manufacturing
process. Most of the powder-metallurgy parts are in the size range of less than 2 kg, though parts as large as
20 kg were made. Large parts require very expensive tooling and as such are not widely made by powder
metallurgy.



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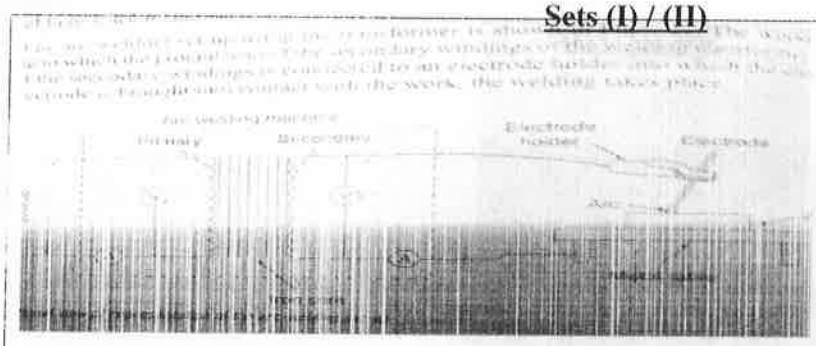
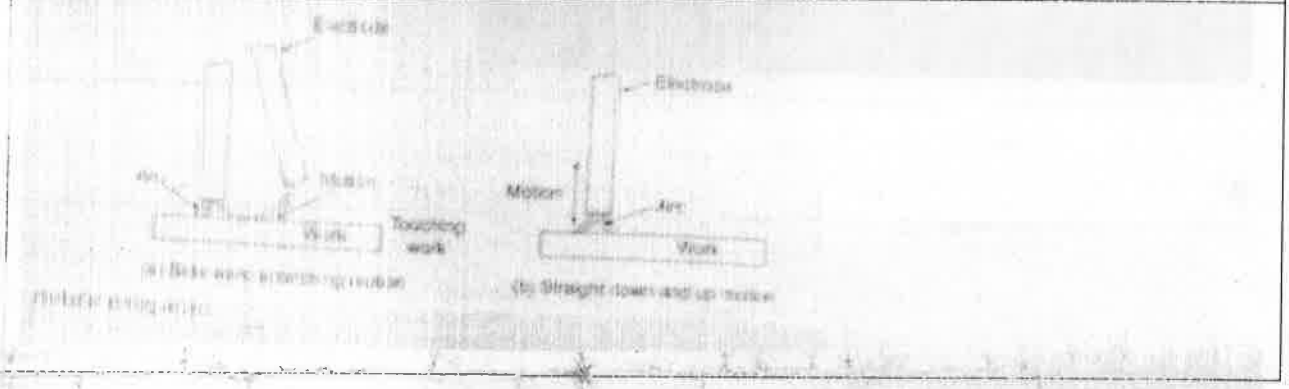
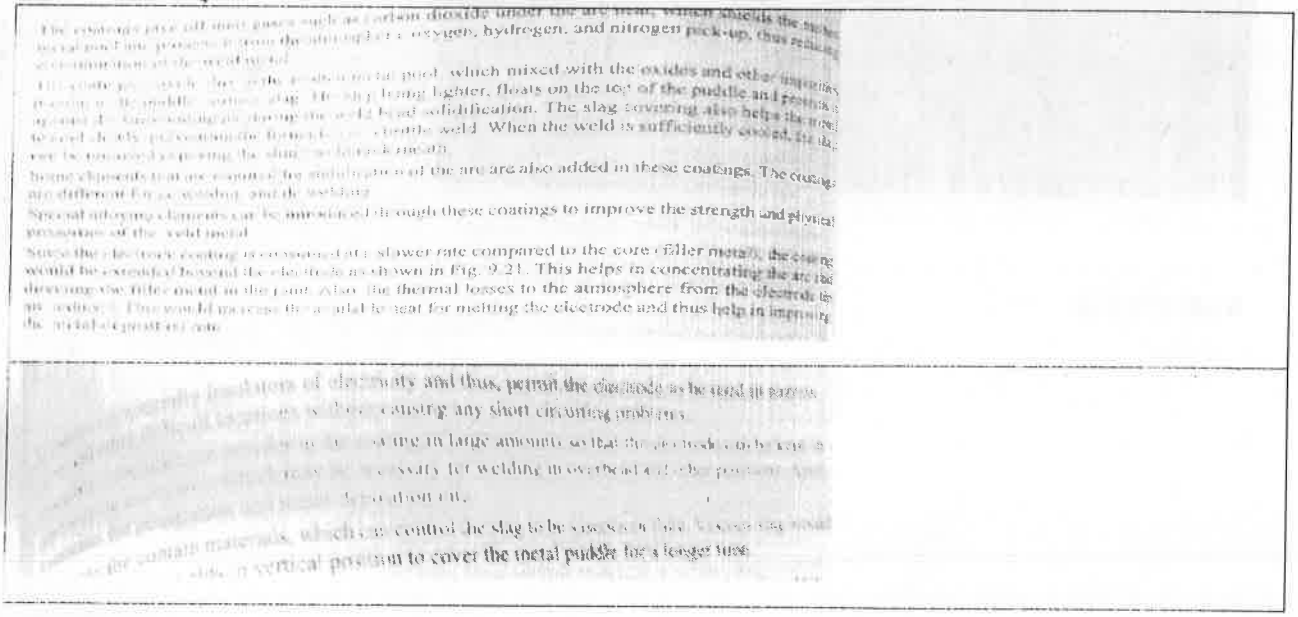
Sets (I) / (II)





(b)



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Address:- Signature of Setter

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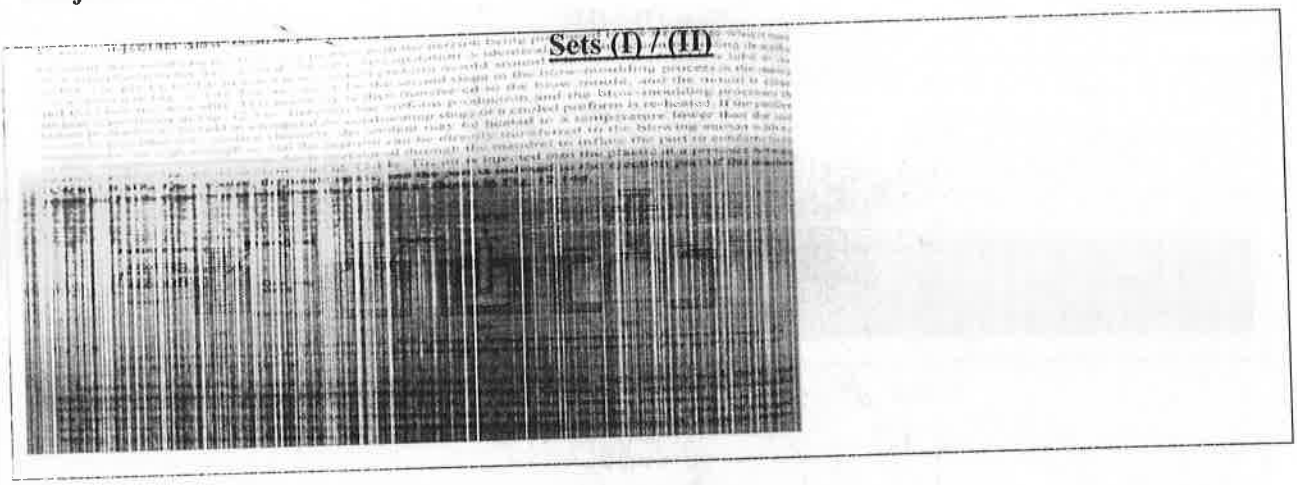
Sets (I) / (II)



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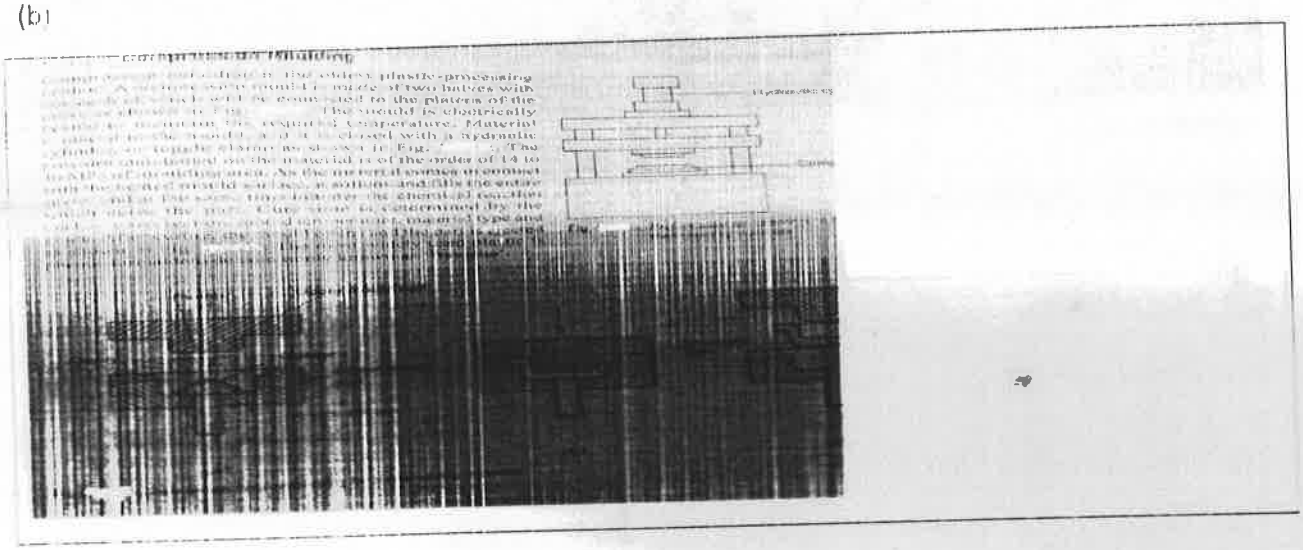

Guideline & all

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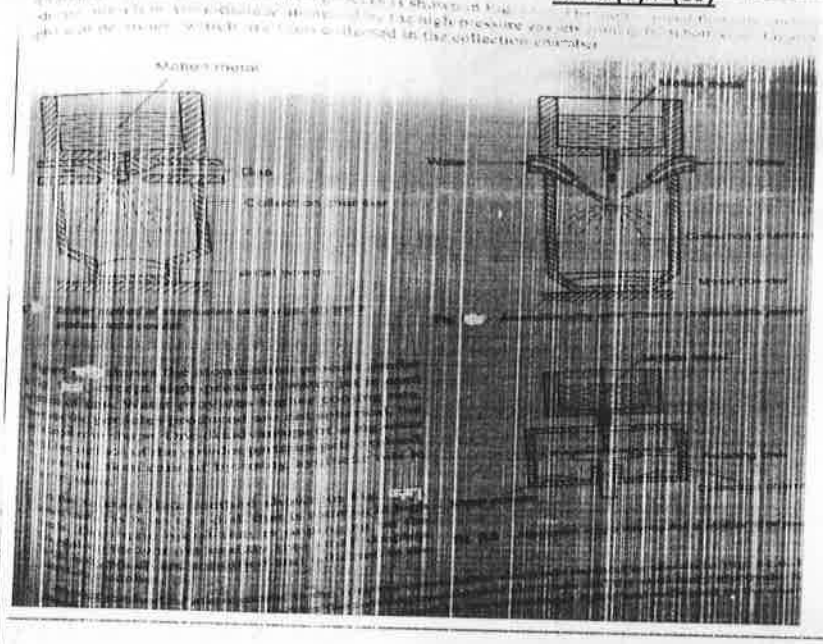
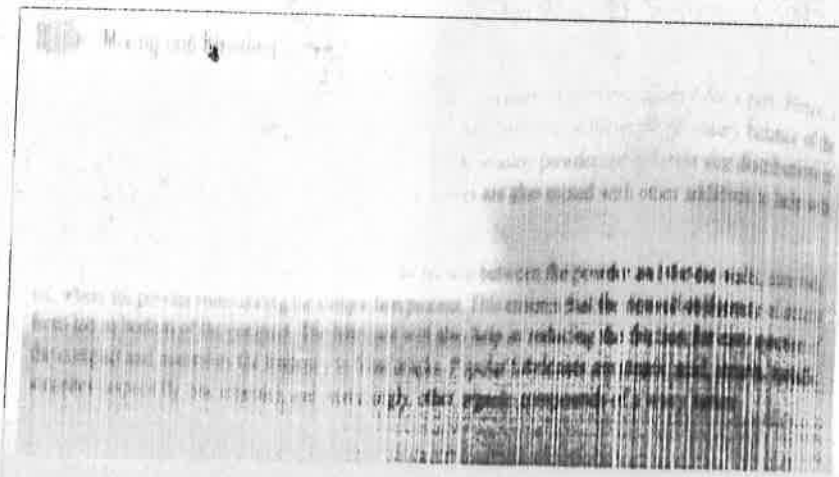
Sets (I) / (II)



(b)



Guideline 7 (a)

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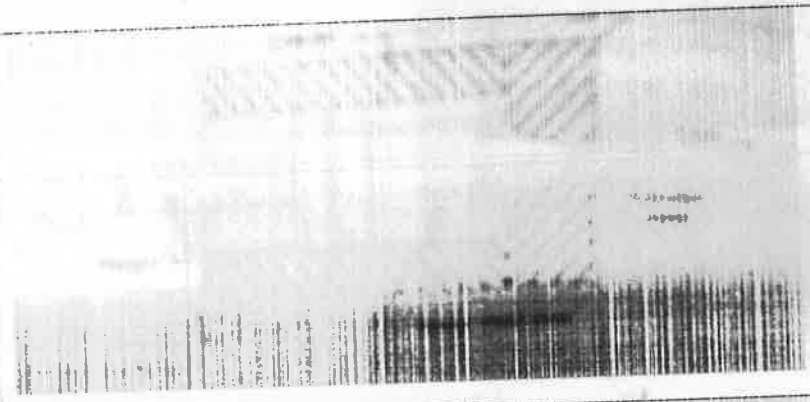
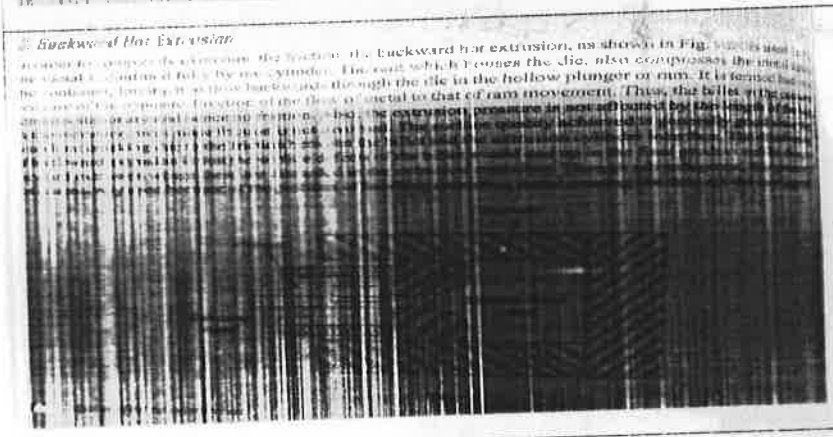
Subject:-

Sets (I) / (II)

because of the relative motion between the heated metal billet and the container wall. This friction, particularly in the case of steel because of their higher extrusion temperatures. To reduce this friction, lubricants are used. At high temperatures, a mixture of oil and graphite is generally used. The problem of lubricant breakdown is compounded at the higher operating temperatures. Molten glass is generally used for extruding steels. The glass is in liquid form at the operating temperature and provides necessary heat insulation to the hot metal billet in addition to lubrication. To reduce the damage to equipment, extrusion is finished quickly and the container is cooled before further extrusion.





Guideline 9 (a)

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Model Answer

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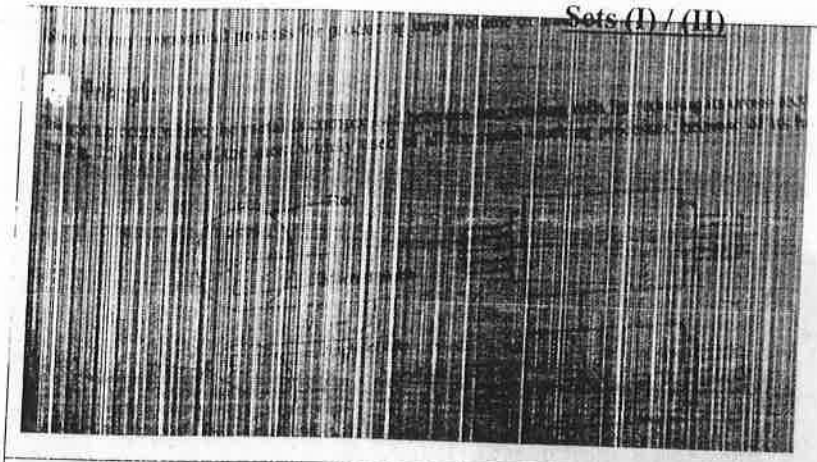
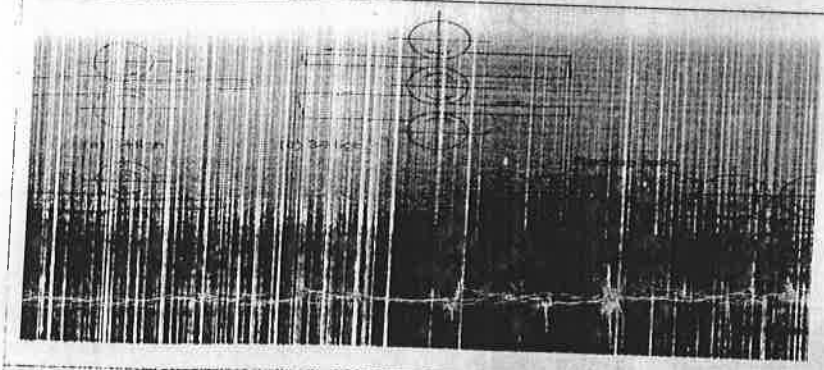
Sets (I) / (II)





(b) is a 2-high reversing rolling stand, where the direction. The arrangement is particularly useful in reducing the rotation can be reversed between the rolling passes. When the metal has reached the right side of Fig. 7.7, the is reversed and the metal is allowed to enter into the next pass. These stands are more expensive the non-reversible type because of the reversible drive needed.

The 3-high rolling stand arrangement, shown in Fig. 7.7(c), is used for rolling of in a rolling sequence without reversing the drives. After all the metal has passed through the the end of the metal is moved into the other set of the rolls for the next pass. For this an arrangement is required to bring the metal to the level with the rolls.

(b)

Forward hot extrusion

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Designation:-

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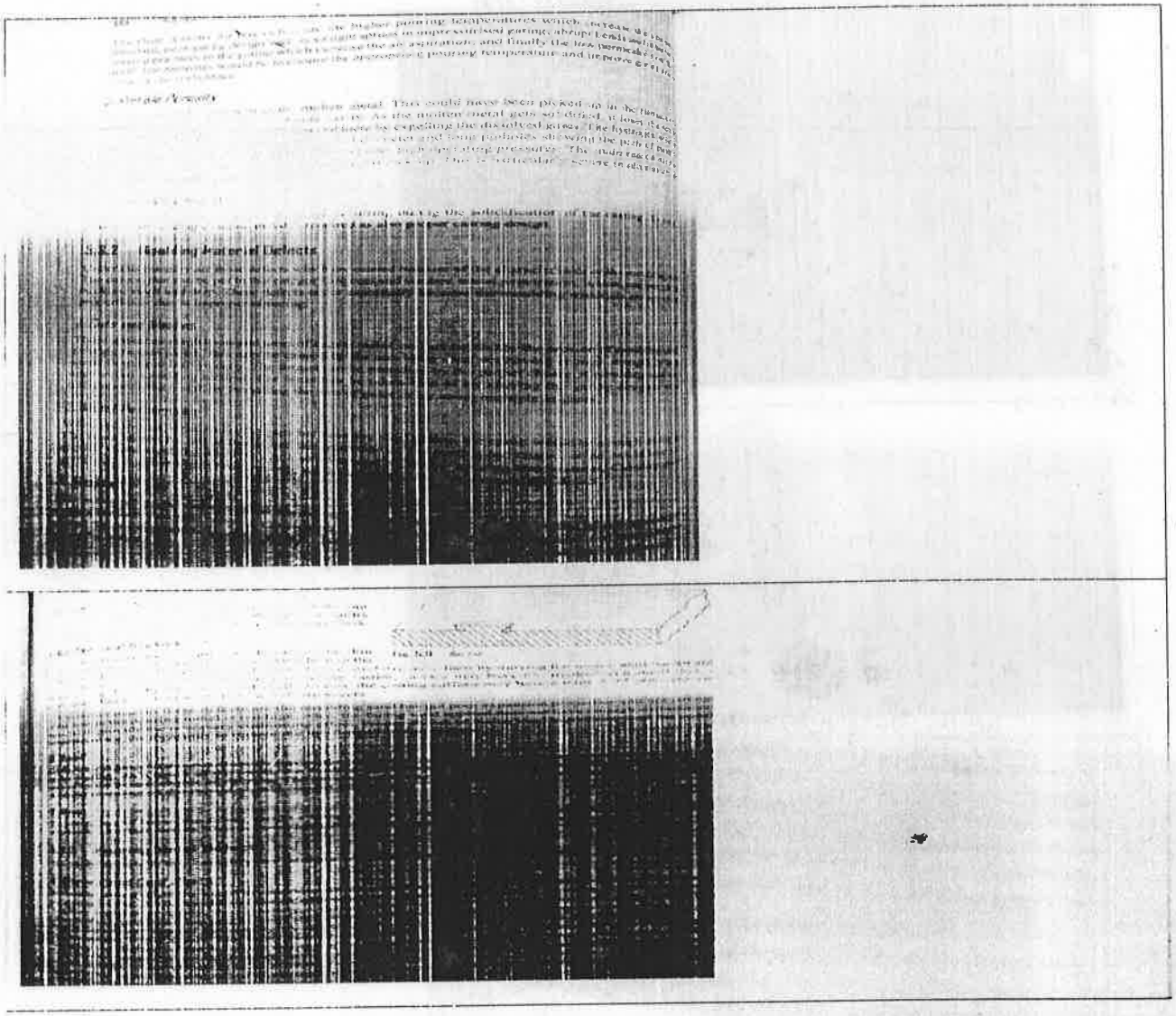
Signature of Setter



(c)