

Q1: (23 Gr.)

1. What are the most important forms of fuel energy? (05 Gr.)

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2. Give the physical properties of crude oil. (05 Gr.)

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3. Write the components of the Drill stem. (04 Gr.)

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4. Mention only ten parts of land Rig. (05 Gr.)

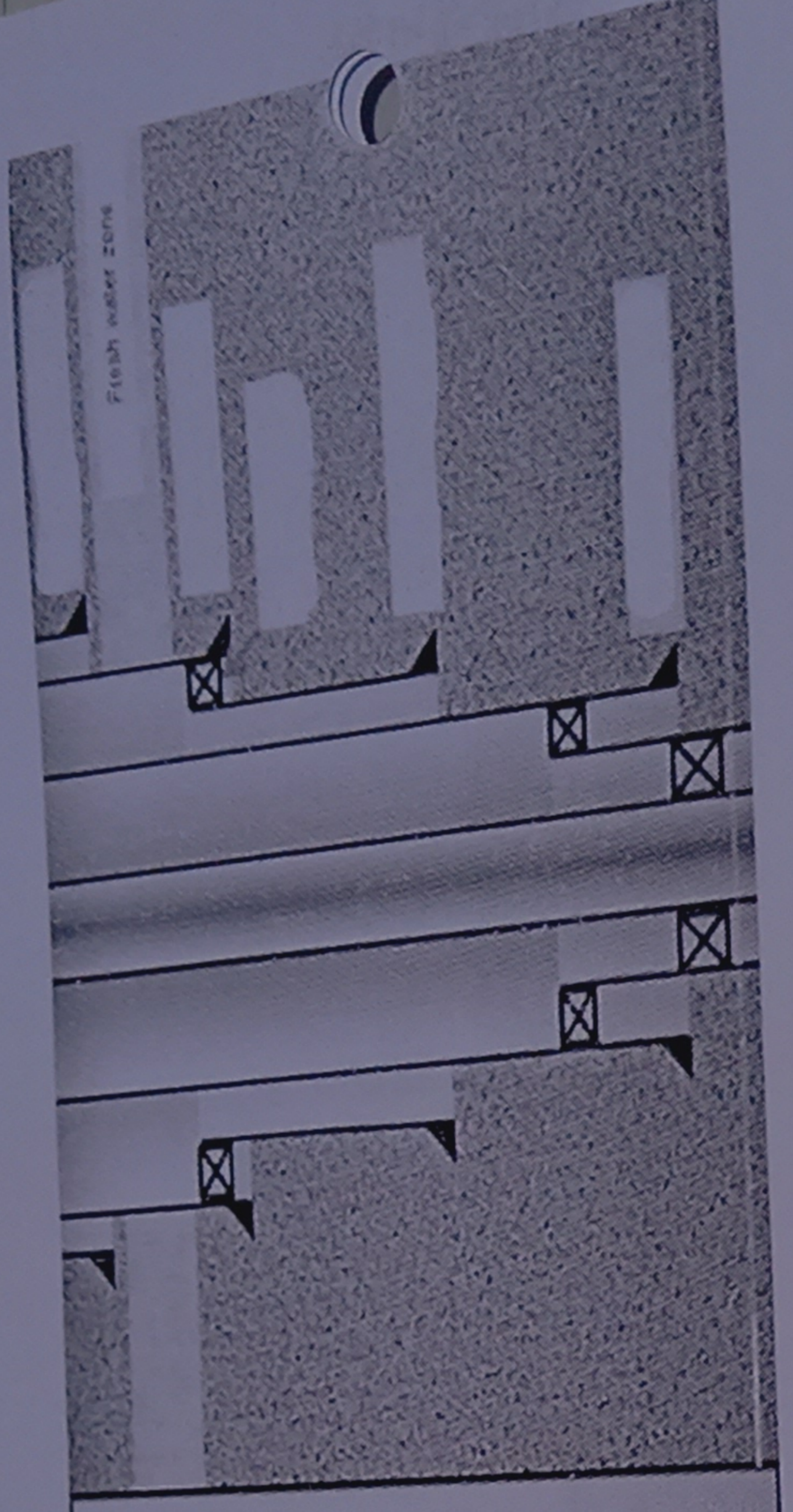
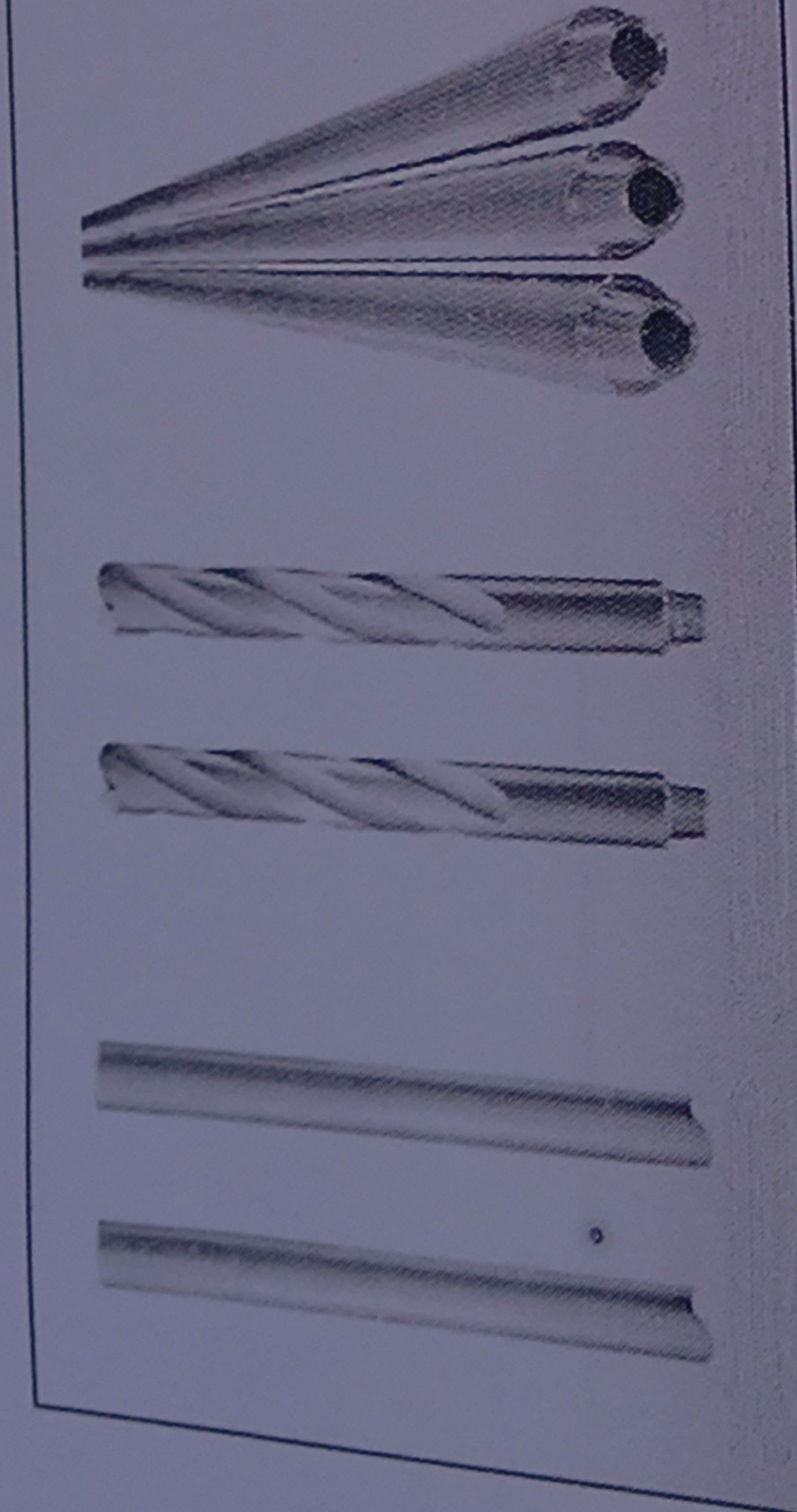
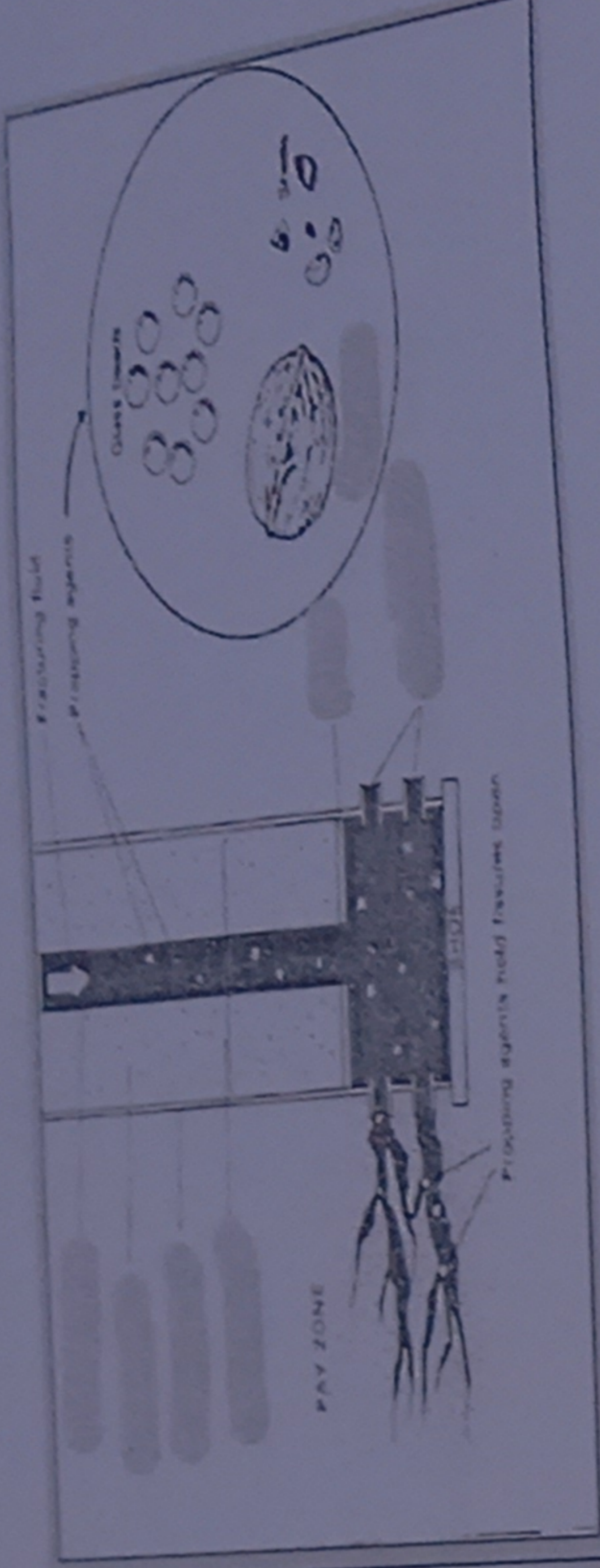
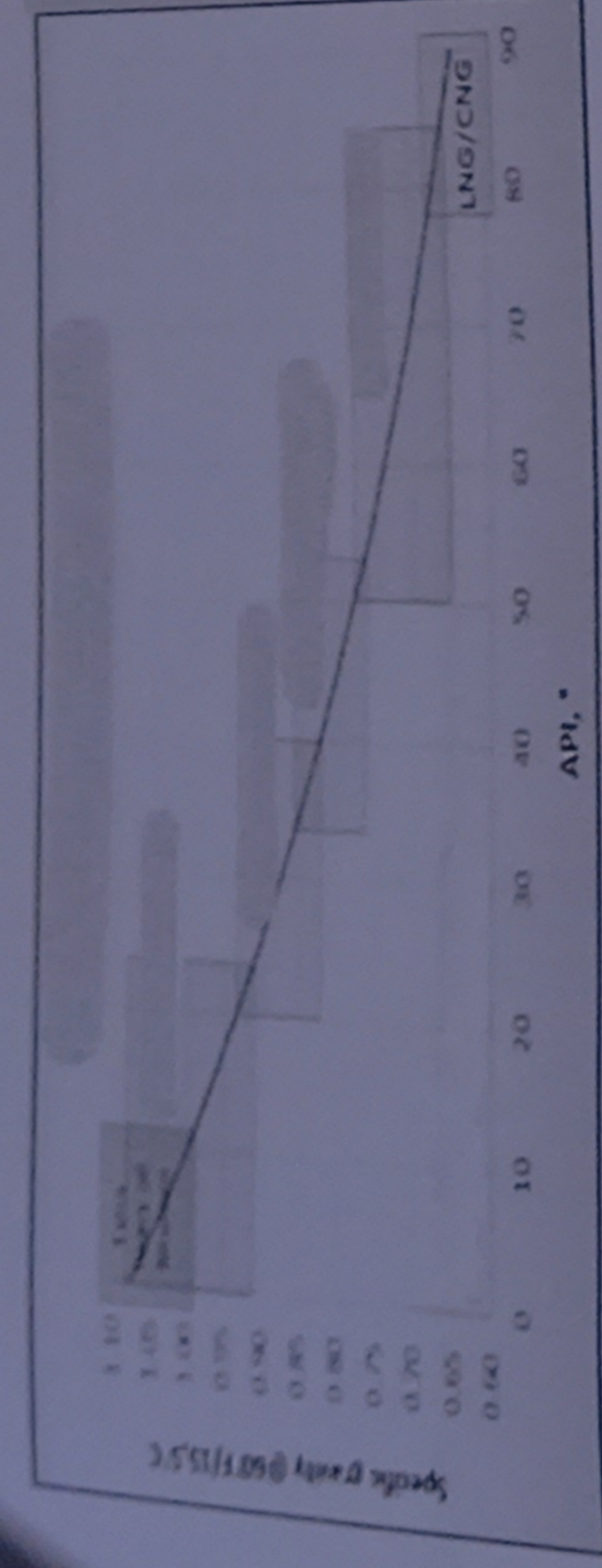
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5. Calculate S.G from the Following (solve with writing equations): (04 Gr.)

• For a Liquid @ API 11

For a Liquid @ API 77

(24 Gr.)
 Write Each Part Erased (20 Parts): (10 Gr.)



B. what is the concept of viscosity? How Many Types of Fluids According to Viscosity? (03 Gr.)

. Complete the following equations: (05 Gr.)

the important application of the effective porosity is its use in determining the original hydrocarbon volume in place. The to
 x volume of the Reservoir can be determined from the following expressions:

Bulk volume = Ah.

Bulk volume = Ah.

where $A = \dots\dots\dots$

$h = \dots\dots\dots$

D. Define the Concept of Movable oil saturation? Write the mathematical equation for Movable oil saturation? (03 Gr.)

E. Mention Briefly the Reservoir Rock Properties? (03 Gr.)

Q³: (13 Gr.)

A. Write the Factors affecting in penetration rate. : (03 Gr.)

The program of The Bit Is Being Prepared for New Well. The Drilling Performance Records for Two Bits Are Shown in The Table Below, for a Thick Sandstone Formation @ 11,000 Ft.

Bit	Bit Cost, L.D	Rotating Time Hr.	Connection Time, Hr.	Mean Penetration Rate, Ft./Hr.
1	33	17	0.4	15
2	55	66	0.6	13

Determine which bit gives the lowest cost, if the operating cost of the rig is 70 LD/Hr., the trip time is 3 Hrs., and the connection time is 01 minute per connection. Which bit would you select? **(05 Gr.)**

C: Write the Name of each Pictures? **(05 Gr.)**

