10. Give sketches showing normal faults and reversed faults. Define the terms—Throw, slickenside, trough-fault, overthrust.
11. Explain as clearly as you can the nature of the movement involved in ordinary cases of faulting. More especially distinguish between apparent horizontal movement (or "heave") and actual horizontal movement (or "shift"). Give one or more illustrative figures, and, if possible, refer to actual examples of faulting known to you.
12. Describe the more common methods employed in prospecting for auriferous-quartz veins.

QUESTIONS ASKED AT THE EXAMINATION FOR BATTERY-SUPERINTENDENTS' CERTIFICATES OF COMPETENCY.

Subject I.—*Milling.*

1. Give an intelligent sketch of a crushing-battery and pulverizing-appliances, showing the relative positions of all these appliances. Also give a detailed description of a modern plant capable of treating 120 tons of ore per day of twenty-four hours.
2. Describe fully how you would construct a cyanide plant to deal with the pulverized ore mentioned in the foregoing question, and the different processes the ores undergo during the extraction of the precious metals and the rendering of them into a marketable commodity.
3. Give a detailed estimate of the cost of construction of plant as mentioned in No. 2 of the foregoing questions.
4. If you had to work a plant electrically as mentioned in the first question, what power in kilowatts would be required, and what volume and pressure would you recommend? Give your reasons for them.
5. What is meant by "electric candle-power"? How many kilowatts are required for 20 lamps of 16 c.p. and 5 lamps of 50 c.p.? Give the volume and pressure you would recommend.

Subject II.—*Amalgamation.*

1. State what kinds of gold-bearing ores are amenable to plate amalgamation.
2. Describe the relative merits of copper and Muntz-metal plates for the amalgamation of gold. Give the composition of Muntz metal.
3. State how you would prepare a new copper plate for amalagmation.
4. Describe, and illustrate with sketches, any continuous-grinding amalgamating-pan with which you are familiar.
5. State the most effective slope for amalgamating-plates for an ore containing, say, 2 per cent. of iron-pyrites.
   When crushing such an ore state what quantity of water you would admit to the stamper-box?
6. When smelting gold bullion state what precautions you would take to turn out clean well-shaped bars of the metal.

Subject III.—*Cyanide, Chlorination, and other Chemical Processes.*

1. In treating ores with KCN solutions how would you ascertain the best strength of solution to use in dealing with the ore for treatment in order to extract the largest percentage of precious metals? Also state the relative fineness the ore is to be pulverized to to get the best extraction of the metals.
2. How is KCN solution made up, and how is the strength ascertained?
3. How many pounds of pure cyanide would be required to make up 20 tons of 0·2 per cent. solution, using a sump solution of 0·03 per cent. KCN?
4. How many tons of a 4-per-cent. solution KCN are required to make up 90 tons of 0·25-per-cent. solution by using a sump solution containing 0·012 per cent. solution KCN?
5. What is meant by "chlorination"? How is it effected? Describe fully the class of ores most suitable for chlorination, and also for treatment with KCN solutions.
6. Describe fully a modern chlorination plant. (*a.*) How is chlorine produced? (*b.*) How is the precious metal dissolved from the ore? (*c.*) What reagent is employed to precipitate gold from the solution and also render the metal to a marketable commodity?
7. How are precious metals recovered from KCN solutions, and how are these metals made into a marketable commodity?
8. In the event of any of the workmen being poisoned by either chlorine gas or hydrocyanic acid, what steps would you take to relieve suffering? Give your reasons fully.

Subject IV.—*Sizing and Concentration.*

1. A gold-bearing ore contains some coarse free gold, 2 per cent of iron-pyrites that carries gold-values, and a considerable proportion of gold in the matrix existing in too finely divided a condition to be amenable to plate amalgamation. State clearly what scheme of treatment you would devise to extract a profitable percentage of the values. Illustrate your scheme by means of a flow-sheet.
2. Describe the Wilfley vanner, its action and limitations.
3. Describe the first principles underlying the magnetic separation of ores.