

2. The wages in a battery where twenty-five men were employed were £360 per month. There were four different rates of wages, which may be termed A, B, C, and D divisions. There were twelve men in A division, six men in B, four men in C, and three men in the D division. Each man in the B division got seven-eighths of the amount paid to each man in A division. The four men in C got one-half that paid to the six men in B, and the three men in D got five-eighths of the amount paid to the four men in C. How much did each division of men receive?

3. If pure gold is worth £4 4s. per oz. how much would 1,000 oz. of bullion amount to if it contained 52 oz. 4 dwt. silver to every 4 oz. 7 dwt. of gold, allowing the silver to be worth 2s. 5d. per oz.

4. Require the contents in cubic feet of a round piece of timber 78 ft. long, the diameter of which at the bottom end was 22 in. and at the top 14 in.

5. Divide 0.0004 by 63 and extract the square root of the quotient.

SUBJECT G.—*A Knowledge of Part V. of "The Mining Act, 1898."*

Oral.

1. From what parts of a mine worked from a shaft shall proper and distinct signals be provided?

2. State the parts of a mine that should be securely fenced in or covered.

3. State how explosives should be stored in mine and on surface.

4. What persons are prohibited working in a mine?

5. State how and when a manager is liable to a penalty.

6. What time is appointed for examining safety appliances and gear connected with cages, winding-ropes, buildings, machinery, and shafts, and the record of such examinations?

7. State what is the duty of any person employed in or about a mine before commencing work, and the steps to be taken if anything is found to be unsafe.

8. What steps should a manager take if an accident occurred with injury to a person?

QUESTIONS USED IN EXAMINATION OF MINING MANAGERS FOR FIRST-CLASS CERTIFICATES.

("The Coal-mines Act, 1891.")

FIRST DAY.—TIME: 9 A.M. TO 12 NOON.

[Candidates must attempt to answer every question. All calculations to be shown in detail.]

SUBJECT I.—*On Prospecting, Sinking, Tunnelling, and Opening out a Colliery.*

1. Describe fully the indications you would look for in searching for coal in a new field, and generally how you would proceed to prove existence of coal-seams.

2. What preparations are required before starting to bore for coal; and what is the object in putting down deep bores or trial-borings?

3. Describe class of machine you would prefer to use in boring deep holes, and state reasons for preference.

4. Describe fully the requisite preparations to be made before starting to sink a shaft, and the reasons which would guide you in choosing site of shaft to develop new coalfield.

5. What appliances should be adopted to protect men working in a shaft in course of sinking?

6. What records are necessary to be kept with reference to strata passed through in sinking a shaft?

7. In starting sinking operations for shaft from which it is intended to wind 500 tons daily—depth, 300 yards—say how you would decide diameter of shaft.

8. Describe fully the means you would adopt to ventilate a shaft in course of sinking.

FIRST DAY.—TIME: 2 P.M. TO 5 P.M.

SUBJECT II.—*On Working Coal and Timbering underground.*

1. Describe briefly the various systems of working coal with which you are acquainted, and state where experience gained.

2. What conditions would guide you in deciding which of two shafts should be the upcast and downcast respectively?

3. What are the advantages (if any) of the longwall system of coal-working?

4. Assume seam 6 ft. thick, with soft floor and moderately hard roof, at depth of 300 yards, dipping 1 in 5, and say how you would work same.

5. What precaution should be taken to reduce danger from coal-dust in fiery mines?

6. In mine with an inclination of 25 degrees, how would you set props to support roof?

7. Give a short description of a good form of brick arching for a main road with double line of rails.

8. Describe shortly the operation of drawing props and chocks, and precautions which should be taken to prevent accidents during the work.