The.... MARITIME MINING RECORD

NOVA SCOTIA EXAMINATIONS, 1909.

UNDERGROUND MANAGERS.

—SURVEY.—

Time—Two and a half hours.

1.—What precautions would you take to avoid errors through the variation of the magnetic meridian ?

2.—In making a loose needle survey underground, what particular precautions would you take ?

3.—The bearing of a line in N. 27 deg. 50 min. E. An angle of 82 deg. 20 min. is turned to the right, what is the bearing ?

4.—Describe how you would book an underground survey.

5.—Plot the following to a scale of 1″ = 100 ft , closing the plot by protractor and scale ; give closing course and distance :

N. 31° 00′ E., 120 feet,
S. 68° 00′ E., 258 feet,
S. 14° 00′ W., 164 feet,
N. 76° 00′ W., 207 feet.

—VENTILATION.—

Time—Three Hours.

1—A fan going at 40 revolutions per minute is producing 80,000 cubic feet of air per minute, with a water guage of 2″. If the speed of fan is increased to 60 revolutions, what will be the quantity of air, and the water guage, after change ?

2—How would you proceed to increase the air current by half without altering the size of the airway ? How much will the water guage be increased to produce the above current ?

3—What is the H. P. of a furnace producing 180,-000 cubic feet of air per minute temperature of downcast 41° and upcast 141°, both shafts 1200 feet deep, borometer reading 31 inches midway down each shaft.

4—How would you ascertain the quantity of air passing in a district ?

5—How would you examine a safety lamp to see that it is in perfect order ? Mention all the parts which are likely to be out of order, of a lamp with which you are acquainted.

6—State fully how you would proceed to examine a place for gas, CH_4. What is the smallest proportion that will show a cap on safety lamp. At what proportions does it explode in a safety lamp, and at what proportion will CH_4 extinguish a light.

And what is the lowest percentage of explosive gas,

in which you deem it safe to carry on blasting.

7—Plan to ventilate.

8—How does the steam jet act in producing a current of air ? Does it signify where the steam jets are placed in the upcast shaft ?

How is it that the steam jet is not more frequently used in the ventilation of coal mines at the present time ?

—MODES OF WORK.—

Time—Three Hours.

1—State fully your experience in mines and mining, giving in detail in what occupations such experience has been gained ; also in what capacities you have been employed in different countries or districts.

(Note :—It is important that candidates answer the above question as fully as possible.)

2—Show by sketch how you would keep a line on the faces of a section of pillar workings with respect to the strike of the strata.

3.—What do you consider usually causes creeps in mines, and how would you proceed to lessen the effect of a creep which had started in a section of a mine pitching 1 in 10 ?

4—What instructions would you give to an employee, unfamiliar with the work, who has been put in charge of a gravity haulage ?

5—What course would you pursue with new men in working faces where fire damp may be expected, and where safety lamps and explosives are used ?

6—Describe and sketch a main hauling road, 8 ft. by 6 ft , soft roof, hard pavement. Mark and sketch size of timbers to be used.

—SCHOLARSHIP.—

Time—Three Hours.

1—What is the value of a rectangle field 80 rods long, 60 rods wide, at $15 00 per acre ?

2—A man's wages is $3 4/5 a day and his daily expenses $1½. How many days must he work to buy a suit of clothes worth $40 1/5 ?

3—State and explain the rule for reducing a vulgar fraction to a decimal fraction. Show sample.

4—Write table of square measure.

5—A, B and C buy a house for $2500,00. A pays $500, B $1200, C $800 ; they rent it for $300. What is each man's share of the rent ?

6—A can do a piece of work in 12 hours, B can do it in 15 hours. In what time can both, working to-