



Regional
NSW

CANDIDATE NUMBER: _____ (write in from your letter)

EXAMINATION: Deputy of underground coal mines

EXAM PAPER: DEP – Coal mining practice and legislation

DATE: Wednesday 10 April 2024

EXAMINATION

BOOKLET

CANDIDATE NUMBER: _____ **(write in from your letter)**

Question Number	Mark	Available mark	Marked by <i>Name</i>	Summary comments to justify, as necessary
1	a	5		
	b	2		
	c	3		
	Subtotal		10	
2	a	4		
	b	2		
	c	4		
	Subtotal		10	
3	a	5		
	b	5		
	Subtotal		10	
4	a	3		
	b	3		
	c	2		
	d	2		
	Subtotal		10	

5	a		3		
	b		6		
	c		1		
	Subtotal		10		
6	a		2		
	b		5		
	c		3		
	Subtotal		10		
7	a		3		
	b		5		
	c		2		
	Subtotal		10		
8	a		3		
	b		5		
	c		2		
	Subtotal		10		
9	a		2		
	b		5		
	c		3		
	Subtotal		10		
10	a		10		
	Subtotal		10		
PAPER	TOTAL		100		<i>Marks checked by:</i>

Examiner: ensure you have completed all relevant sections of the above table. Your signature should appear in each applicable box in the 'marked by' column.



Regional
NSW

(DEP)

Work Health and Safety (Mines and Petroleum Sites) Act 2013
Work Health and Safety (Mines and Petroleum Sites) Regulation 2022

EXAMINATION FOR CERTIFICATE OF COMPETENCE
Deputy of underground coal mines
Coal mining practice and legislation Paper

Wednesday 10 April 2024
9:50am to 12:30pm (150 minutes)

Venue: Tocal College, Paterson NSW 2421

Room: The Hall **OR** North Court (*as per email*)

INSTRUCTIONS TO CANDIDATES

All ten (10) questions are to be attempted.

All questions are of equal value - 10 marks each

10 minutes reading time is allowed prior to the start of the examination

Unless otherwise stated all references to Act and Regulations are to:

Work Health and Safety Act 2011

Work Health and Safety Regulation 2017

Work Health and Safety (Mines and Petroleum Sites) Act 2013

Work Health and Safety (Mines and Petroleum Sites) Regulation 2022

Explosives Act 2003

Explosives Regulation 2013

ANSWER BOOKLET

- A HIGHLIGHTER ONLY (no pen/pencil etc) can be used in this part of the exam paper during reading time
- If you have a question raise your arm and wait for an exam supervisor
- Answers are to be written in the allocated spaces within this booklet ONLY. If space is not sufficient, use blank pages at the end of the booklet, ensuring to label correctly.
- Answers must be written in pen however, drawings may be completed in pencil
- This booklet is not to be altered in any way, pages are not to be added or removed

Question 1 (total 10 marks)

On the previous shift a small down throw fault was intersected in the face of the Cut and Flit Product Panel that you are the Deputy responsible for. The decision has been made to grade the roof down through the fall during your shift. The undermanager has tasked you with ensuring all Frictional Ignition Controls are implemented prior to production occurring on your shift as per the shifts Frictional Ignition Management Plan.

- a) What controls would be required to reduce the potential risk associated with Friction Ignition? (5 marks)

/5

- b) What are common causes of Friction Ignition events within development panels? (2 marks)

/2

- c) In the event that a Frictional Ignition event occurred within your production face, what would be your immediate actions? (3 marks)

/3

Question 2 (total 10 marks)

You're the Deputy in charge of the in-seam drilling crew who have been tasked with taking an in-seam gas core. The mines safe work procedure will instruct the crew on how to take the core. The following questions relate completing the Q₁ test of the core:

a) What are the steps involved in completing a Q₁ test underground? (4 marks)

/4

b) What is the purpose of the Q₁ test? (2 marks)

/2

c) Whilst at the In-seam Drill rig site, what checks and inspections would you undertake to ensure statutory compliance requirements relative to any gas make from the hole being drilled? (4 marks)

/4

Question 3 (total 10 marks)

During your first inspection of the production face you notice that the roof support installed on the previous shift for a distance of approximately 15m back from the face does not comply with the Manager Support Rules. The outside bolts of the 4 bolt pattern have been installed too close to the rib line and a distance exceeding the tolerance on the support plan.

a) What action would you take relative to this finding? (5 marks)

/5

b) What information needs to be communicated relative to this event and to who? (5 marks)

/5

Question 4 (total 10 marks)

There are minimum ventilation requirements for various processes in underground coal mines. Briefly explain what these minimum requirements are, and how they should be verified relating to the following:

- a) Development production panel with a cutting height of 3 metres and 5.2m wide. (3 marks)

/3

- b) An operating longwall panel with an extraction height of 3.5m (3 marks)

/3

- c) A diesel combustion engine operating in a development panel to supply and stonedust the working areas with a maximum total Kw capacity of 75Kw (2 marks)

/2

- d) A diesel combustion engine operating in a longwall panel with a maximum total Kw capacity of 50Kw (2 marks)

/2

Question 5 (total 10 marks)

You are a deputy who works at mine that shuts down over the weekend and re-commences operations on a Sunday evening. You are tasked with completing a pre-shift inspection of the mine, of which the Undermanager will not arrive for at least 2 more hours. The main fan is running, and all monitoring available is 'normal'. You have an electrician and operator available to assist you during the inspection. Briefly explain what actions should be taken during the following steps of the pre-shift inspection:

- a) You are on the surface prior to heading underground (3 marks)

/3

- b) You are accessing the underground workings and will inspect 2 production panels (6 marks)

/6

c) How many persons in addition to yourself can be underground under your supervisor without an Undermanager? (1 mark)

/1

Question 6 (total 10 marks)

You are a deputy during a longwall relocation. Briefly describe the actions that should be taken, and any relevant verification processes at the following:

a) Tradesmen intend to operate battery powered tools in the hazardous zone (2 marks)

/2

b) An operator tasked with assisting dismantling the breaker stage loader (BSL) reports to you that a slab of rib material has fallen, weighing approximately 50kg and landed about 5m away from where the workgroup was located at the time of the event. The workgroup has been walking past the affected area frequently throughout the shift. (5 marks)

/5

c) Outline the next steps and reporting that is required from the incident (3 marks)

/3

Question 7 (total 10 marks)

You are a deputy in a development panel, at a mine which has an in-situ gas content of 12m³/t, predominantly methane. During the production cycle an in-seam gas drainage borehole has been intersected which was not on the authority to mine. There has been ejection of some material, striking the continuous miner driver in the chest where they have visible signs of lacerations as a consequence.

a) What initial actions should be taken by the deputy? (3 marks)

/3

b) Describe actions should be taken prior to production recommencing? (5 marks)

/5

c) Who should be notified, and when as an outcome of this event? (2 marks)

/2

Question 8 (total 10 marks)

You are the deputy in charge of a shot firing exercise in the main transport headings where you are installing a predesigned overcast for future ventilation purposes. You will oversee the blasting activities of where a contracted “Shotfirer” is being utilized. The work is in intake air and no workers are affected inbye as a result of the blasting. Note the mine is furnished with approved Magazines and Temporary Magazines for this purpose.

a) You are on the surface prior to heading underground, outline the process you will undertake to confirm the activity is being performed legally? (3 marks)

/3

b) You are now completing an inspection of the area underground, outline the matters and controls measures you are inspecting for the safe detonation of the explosives (5 marks)

/5

c) You have now overseen the shotfirer execute his first round of shots and he advises you he suspects a misfire. Please outline your next steps and the reporting that is required from the incident (2 marks)

/2

Question 9 (total 10 marks)

You are the Deputy in charge of a single miner development panel for longwall mining purposes. The panel is 12 pillars in from the mains headings. The panel is being supplied by 11kV power supply.

- a) Please explain in your words the electrical reticulation that would be in place from the start of the panel to the most inbye HV/LV section transformer prior to the commencement of the hazardous zone. (2 marks)

/2

- b) Please explain in your words the electrical reticulation that would be in place from most inbye HV/LV section transformer into the working development face. (5 marks)

/5

c) Please explain the electrical demarcation colours used in underground coal mines differentiating the types of voltage above extra low voltage (3 marks)

/3

Question 10 (total 10 marks)

You are the Deputy in charge of a Longwall production face. The mine has a face height of 3.2m and is 250m wide.

Please explain the process you would follow for access on the face side of the panline for routine maintenance on the shearer. In your answer, please identify the controls you will enact for the hazards identified. (10 marks)

/10

END OF QUESTIONS
END OF PAPER

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