

CANDIDATE EXAM PAPER

CANDIDATE NUMBER: \_\_\_\_\_

Paper A – Legislation knowledge

**QUARRY MANAGER OF MINES OTHER THAN UNDERGROUND MINES OR  
COAL MINES**

**EXAMINATION FOR CERTIFICATE OF COMPETENCE**

Legislation to be assessed:

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 2014*

*Explosives Act 2003*

*Explosives Regulation 2013*

This Examination is held in the following location:

Region: New South Wales

Venue: Online

Room:

**Start date/time: 08 Sep 2022 08:50:00**

**Paper A – Legislation knowledge**

INSTRUCTIONS TO CANDIDATES

Paper A – Legislation knowledge | Sep-2022

<b>Section #</b>	<b>Marks</b>	<b>Available Marks</b>	<b>Marked by</b> <i>Initials</i>	<b>Summary comments to justify</b>
1		35		
2		10		
3		10		
4		15		
5		20		
6		10		
7		10		
<b>Paper Total</b>		<b>110</b>		<i>Marks checked by:</i>

## Paper A – Legislation knowledge | Sep-2022

Duration: 2 hrs 40 minutes (including 10 minutes reading time)

By proceeding with this, you have acknowledge that you have read the exam rules and requirements and Breach of exam rules policy on our website.

Primary benchmark: Legislation – knowledge (Essential)

### Marking criteria

A candidate will be deemed competent if they have passed five (5) of the seven (7) sections.

If successful, the candidate will be deemed competent in;

Legislation knowledge

And also have contributed towards their competence in;

Situational Awareness and Risk Management

Driven by safety and integrity

Operational Decision Making and Initiative

In answering the questions candidates should explain, in their own words, what the legislation means. In doing so candidates are expected to demonstrate an understanding of the legislation and how they would apply it if they were appointed the Quarry manager of mines other than underground mines or coal mines.

Demonstrate awareness of relevant standards, codes of practice and/or MDGs for each answer if applicable.

All Forty eight (48) questions are to be attempted.

Not All questions are of equal value and parts of questions may also vary in value. The marks applicable to each part of a question will be indicated adjacent to the question.

This examination is a closed book examination – that is you cannot bring any reference material in to refer to the exam, such as copies of legislation. Reference material will be provided in the exam paper as applicable.

## Section 1

### General duties, obligations, and legislation framework (35 marks) (Desirable)

#### Candidate will be required to get 22 out of 35 marks to have passed this section

1. Section 17 of the WHSA 2011 imposes a duty on a person to ensure health and safety by managing risks and it requires the person to deal with the risk in a particular order (list the two orders) (2 marks). Mark your answer using a), b)

a)

b)

2. The WHSA 2011 s18 provides a definition of what is 'reasonably practicable' in ensuring health and safety. Record in your own words what is meant by "reasonably practicable". (2 marks)

3. List four (4) relevant matters that must be taken into account when determining what is reasonably practicable? (4 marks). Mark your answer using a), b), c), d).

a)

b)

c)

d)

4. What does the acronym PCBU stand for? (1 mark)

5. Who is the primary PCBU on a mine site? (1 mark)

6. Can a duty imposed under WHS legislation be transferred to another person? (1 mark) (Select the correct answer)

- Yes
- No

7. Clause 7 of the WHSA 2011 defines a 'volunteer' as a 'worker'. List five (5) other categories of workers that may be on a quarry site? (5 marks). Mark your answer using a), b), c), d), e)

- a)
- b)
- c)
- d)
- e)

8. Clause 6 WHS(MPS)R states that the mine holder may appoint a person to be the mine operator if they are a PCBU and are appointed in line with this clause. The person must also satisfy two other requirements to be the mine operator. List these two requirements (4 marks). Mark your answer using a), b)

- a)
- b)

9. Clause 129 of WHS(MPS)R lists several matters that the mine operator must notify the Resources Regulator of (Notification of other matters) List five (5) of these matters. (5 marks). Mark your answer using a), b), c), d), e)

- a)
- b)
- c)















## 6HFWLRQ 5

### Safety Management System - (content and implementation) (20 marks)

Candidate will be required to get 13 out of 20 marks to have passed this section

1. List five (5) Principal Control Plans (PCP) required for a typical large hard rock quarry that are contained in the Safety Management System? (5 marks). Mark your answer using a), b), c), d), e).

- a)
- b)
- c)
- d)
- e)

2. The operator of a mine site must keep a record for the mine site WHS(MPS)R cl133. List 4 things the 'mine record' must contain? (4 marks). Mark your answer using a), b), c), d).

- a)
- b)
- c)
- d)

3. Clause 22 (1) of the WHS(MPS)R states that a contractor must not carry out mining operations at a mine unless arrangements have been made with respect to safety management plans. (5 marks) What are the two options available to the contractor and how is the process completed? Mark your answer using a), b).

- a)

- b)

4. After the first review of the Safety Management System (SMS) the mine operator must ensure the SMS is reviewed every (X) years from then on (as a minimum)? (1 mark) (Select the correct answer)

- 2
- Annually
- 3
- As the mine operator decides

5. Clause 14 of the WHS(MPS)R requires the Safety Management System to include arrangements for workplace inspections. Clause 37 (2) then details four (4) matters that must be taken into account when developing the workplace inspection arrangements. Name 3 of these matters? (3 marks). Mark your answer using a), b), c).

a)

b)

c)

6. The Safety Management System must set out the health and safety policy for the mine. In your own words describe 2 matters the policy should include? (2 marks)

## Section 6

**Principal Hazard Management Plans (PHMP) & Principal Control Plans (PCP) - (10 marks)**

**Candidate will be required to get 6 out of 10 marks to have passed this section**

1. In your own words what is the meaning of a principal hazard as per *WHS(MPS)R 2014 (clause 5)*? (2 marks)

2.

One of the mandatory Principal Control Plans is the 'Health Control Plan' (HCP). Clause 1 of schedule 2 WHS(MPS)R details five (5) matters that must be addressed in the HCP. List 4 of the matters (4 marks). Mark your answer using a), b), c), d).

a)

b)

c)

d)

3. What is the maximum permissible legislated diesel particulate—exposure for an 8 hour shift? (1 mark) (Select the correct answer)

- 0.3 milligrams per cubic metre of air
- 0.5 milligrams per cubic metre of air
- 1.0 milligrams per cubic metre of air
- 0.1 milligrams per cubic metre of air

4. What are the 8-hour time weighted average (TWA) noise levels that persons at a mine must not be exposed to? (1 mark) (Select the correct answer)

- 115dB
- 85 dB
- 75 dB
- 95 dB

5. What is the peak noise level that persons at a mine must not be exposed to? (1 mark) (Select the correct answer)

- 140 dB
- 115 dB
- 85 dB
- 150 dB

6. Clause 24 WHS(MPS)R states that a mine operator must ensure that (X) does not take place at a mine until a PHMP has been prepared. What is (X)? (1 mark)

- Blasting
- Mining activities
- Mining Operations
- Crushing and screening

## Section 7

### Incidents and reporting (10 marks)

**Candidate will be required to get 7 out of 10 marks to have passed this section**

1. After notifying the Resources Regulator, the site of a notifiable incident remains preserved until either one of two things occur; What are they? WHS(MPS)A section 17 (2 marks) Mark your answers using a), b).

a)

b)

2. Other than after a significant revision of an emergency plan, how often must the emergency plan be tested? (1 mark) (Select the correct answer)

- no more than 12 months
- no more than 6 months
- no more than 2 years
- after an incident

3. The WHS(MPS)R prescribes the types of injuries, illness and incidents that are notifiable to the Regulator.

Using the list of options below, nominate the most relevant notification, if applicable, relating to the following 5 incidents: (5 marks). Mark your answer using a), b), c), d), e).

(i) Clause 178 Serious injury or illness

(ii) Clause 179 Dangerous Incident

- (iii) Clause 128 (1) (a) Medical Treatment
- (iv) Clause 128 (1) (b) High Potential Incident
- (v) Not notifiable

**List of Incidents**

- a) Your most recent personal dust monitoring for respirable dust lists the following result for a worker with an exposure for an 8-hour shift 0.3 milligrams per cubic metre of air.
  - b) A worker loses control of the remotely driven dozer (would not stop for 5 meters), however no one was near the dozer and it stopped safely.
  - c) A contract fitter is sprayed with oil while she is performing maintenance duties on a contractor's drill rig.
  - d) The same contract fitter clips the front entrance while leaving the site and rips the revision mirror off the ute and damages the tray.
  - e) The admin officer trips on the front step and fractures a small bone in her foot. She goes to outpatients, however they require her to stay in hospital over night to allow the swelling to subside before applying a cast. She returns to work the next day on her normal duties.
- a)
  - b)
  - c)
  - d)
  - e)

4. In a practical sense how do you report (notify) the NSW Resources Regulator that a dangerous incident has occurred on you mine site? (1 mark)

5. What is the time frame and mechanism for making the notification for a dangerous incident? (1 mark)



**End of Document**

CANDIDATE EXAM PAPER

CANDIDATE NUMBER: \_\_\_\_\_

Paper B – Legislation knowledge and application

**QUARRY MANAGER OF MINES OTHER THAN UNDERGROUND MINES OR  
COAL MINES**

**EXAMINATION FOR CERTIFICATE OF COMPETENCE**

Legislation to be assessed:

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 2014*

*Explosives Act 2003*

*Explosives Regulation 2013*

This Examination is held in the following location:

Region: New South Wales

Venue: Online

Room:

**Start date/time: 08 Sep 2022 12:00:00**

**Paper B – Legislation knowledge and application**

INSTRUCTIONS TO CANDIDATES

Paper B – Legislation knowledge and application | Sep-2022

<b>Section #</b>	<b>Marks</b>	<b>Available Marks</b>	<b>Marked by</b> <i>Initials</i>	<b>Summary comments to justify</b>
1		24		
2		38		
3		25		
4		28		
5		31		
<b>Paper Total</b>		<b>146</b>		<i>Marks checked by:</i>

## Paper B – Legislation knowledge and application | Sep-2022

Start Date and Time: 8th September 2022 1200hrs

Duration: 2 hrs 40 minutes (including 10 minutes reading time)

By proceeding with this, you have acknowledge that you have read the exam rules and requirements and Breach of exam rules policy on our website.

Primary benchmarks: Legislation – application (Essential)

Mining & WHS Systems (Essential)

Marking criteria

A candidate will be deemed competent if they pass (4) of the five (5) sections, and

A candidate must pass Section 4 (Blast management)

If successful, the candidate will be deemed competent in;

Legislation application, and

Mining and WHS Systems

And have also contributed towards their competence in;

Situational Awareness and Risk Management

Collaboration

Responsiveness to change

Operational Decision Making and Initiative

In answering the questions candidates should explain, in their own words, what the legislation means. In doing so candidates are expected to demonstrate an understanding of the legislation and how they would apply it if they were appointed the Quarry manager of mines other than underground mines or coal mines.

Demonstrate awareness of relevant standards, codes of practice and/or MDGs for each answer if applicable.

All Fourty five (45) questions are to be attempted.

Not All questions are of equal value and parts of questions may also vary in value. The marks applicable to each part of a question will be indicated adjacent to the question.

This examination is a closed book examination – that is you cannot bring any reference material in to refer to the exam, such as copies of legislation. Reference material will be provided in the exam paper as applicable.

Scenario for the following five (5) sections in this paper

Your company is embarking on a period of expansion and you have purchased five (5) existing quarries in the regional area. The WHS growth strategy is to bring all the operations under one Safety Management System (SMS).

You have been given the job of auditing existing systems, plant & equipment and competencies to ensure that sites are initially compliant with WHS requirements.

## Section 1

### Situational Awareness and Risk Assessment (Mechanical & Structural controls) (24 marks) (Desirable)

Candidate will be required to get 16 out of 24 marks to have passed this section

Scenario has been provided, click on "info" button next to the calculator to refresh your memory.

One of the first assessments that you initiate is a structural integrity review of all buildings and plant on each site. You are provided with a copy of the structural integrity report for quarry # 1 that identifies 50 different defects across the site, 2 of the critical defects are listed below:

- The hold down bolts on the base of the pug mill silo have no nuts and washers and the legs are showing signs of excessive corrosion.
- A walkway surrounding the primary screen is corroded and there are places where the expansion mesh has holes.

1. Based on the above summary what should your immediate action be? (list four actions) (4 marks) Mark your answer using a), b), c), d).

a)

b)

c)

d)

2. Pick one of the two critical priority items from the previous question and list the hierarchy of controls in the correct order and provide an example of the control that you will implement that matches the hierarchy? (12 marks) Display your answer as closely to following format if possible. Select insert table in your answer box and draw a table of 2 columns and 8 rows.

Name of Critical Item:	
Hierarchy of Control	Detail of Control


3. Your audit identifies that all the acquired sites require a designated hot work area in their workshops. List 5 physical controls that you would implement when setting up a 'designated hot work area'? (5 marks), 1 mark each. Mark your answer using a), b), c), d), e).

- a)
- b)
- c)
- d)
- e)

4. The controls used to manage hot work should be listed in the sites Safety Management System. List three (3) Principal Hazard Management Plans or Principal Control Plans that directly manage aspects of hot work (3 marks), 1 mark each. Mark your answer using a), b), c).

- a)
- b)
- c)

## Section 2

### Collaboration (Mine Planning, Ground stability & Inrush) (38 marks) (Desirable)

**Candidate will be required to get 24 out of 38 marks to have passed this section**

1. Some of the quarries have Principal Hazard Management Plans (PHMP), most do not have an underpinning risk assessment, all do not relate to the 'mine plan' and the supervisors and workers have not been trained in the controls.

The WHS(MPS)R 2014 cl 122 &/or cl 123 requires certain things to be shown on a mine survey plan (if present on site) or a mine plan. List 5 items that must be shown on the plan. (5 marks), 1 mark each. Mark your answer using a), b), c), d), e).

a)

b)

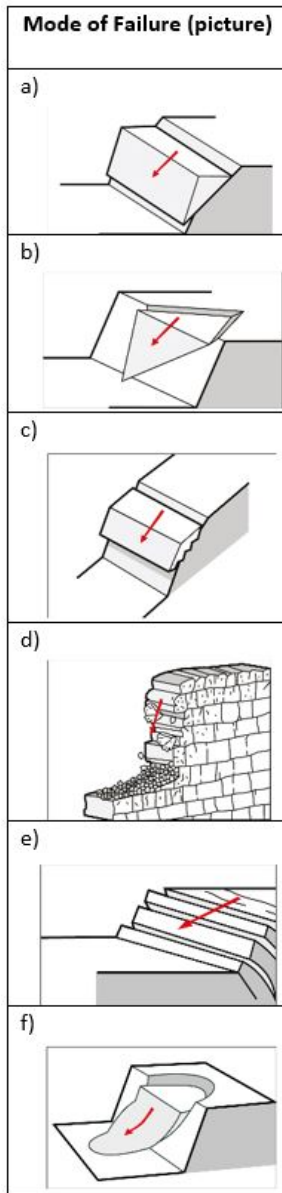
c)

d)

e)

2. Name the correct mode of ground failure and mark your answer using a), b), c), d), e), f). (6 marks), 1 mark each.

- Wedge Failure
- Ravelling Failure
- Toppling Failure
- Circular Failure
- Planar Failure
- Step Path Failure



- a)
- b)
- c)
- d)
- e)
- f)

3.

You are working with your new supervisors to develop a daily inspection sheet for the face operator to check ground conditions and machine set up before excavating the face. List five (5) items that you will include on the checklist? (5 marks), 1 mark each. Mark your answer using a), b), c), d), e).

- a)
- b)



- c)
- d)
- e)

4.

One of your quarries requires artificial ground support to be used on a wall that is adjacent to the new mobile crusher location. (There is no other location for the crusher to be positioned)

Describe each of the following artificial ground support systems that would be considered and list an example of each? (8 marks), 2 marks each. Mark your answer using a), b), c), d).

- a) Rock bolting
- b) Retaining type (wall) structures
- c) Surface treatments
- d) Buttrressing

- a)
- b)
- c)
- d)

5. Workers return from lunch and you are advised of a bench failure adjacent to your main haul road, (picture below).



i) List three (3) immediate actions you will take? (3 marks). Mark your answer using a), b), c).

a)

b)

c)

ii) You have assembled a team of workers and supervisors to work through an action plan. Name three external people you may engage to assist with the review? (3 marks) Mark your answer using a), b), c).

a)

b)

c)

iii) You have determined that the haul road is still safe to use providing you implement a routine monitoring program. List four (4) methods of monitoring that you could implement? (4 marks). Mark your answer using a), b), c), d).

a)

b)

c)

d)

6. The majority of dams on quarry sites are classified as 'small dams'.

Regardless of size, list 4 matters to be considered when designing dams that are important criteria to ensure their structural integrity? (4 marks), 1 mark each. Mark your answer using a), b), c), d).

- a)
- b)
- c)
- d)

### Section 3

**Responsiveness to change – (Roads and Other Vehicle Operating Areas) (ROVOA) (25 marks) (Desirable)**

**Candidate will be required to get 16 out of 25 marks to have passed this section**

1. As part of your review, you have identified a consistent theme of vehicle interaction incidents and near misses at all sites. You invite all Quarry Managers to your largest operation to review each sites traffic management plan and Principal Hazard Management Plan for (ROVOA)

A starting point for the review is to ensure that each site has considered the specific controls detailed in clause 28 (Movement of Mobile Plant) WHS(MPS)R2014. The clause details several interactions that must be considered when managing risks involving movement of mobile plant? List four (4) of the interaction hazards you need to consider? (4 marks) Mark your answer using a), b), c), d).

- a)
- b)
- c)
- d)

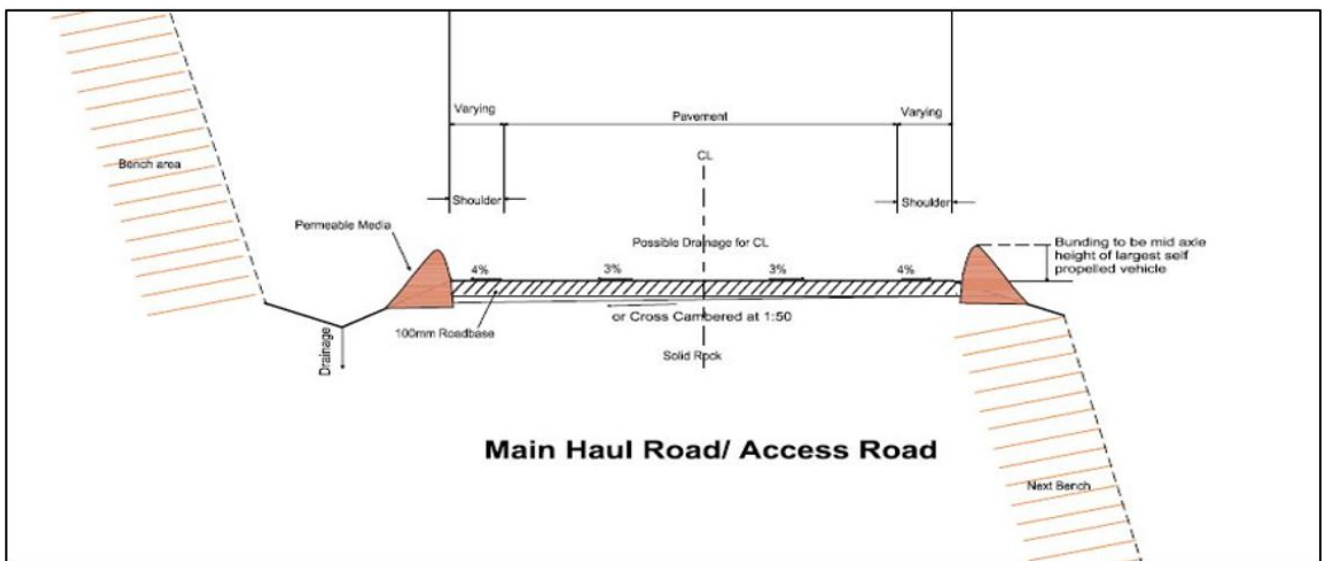
2. Another strong theme is the frequency of Articulated Dump Truck (ADT) tub rollovers. There have been numerous safety alerts from the Regulator that outline a range of known controls. List six (6) controls to reduce the frequency of rollover incidents. (6 marks) Mark your answer using a), b), c), d), e), f).

- a)
- b)
- c)
- d)
- e)
- f)

3. For a standard articulated dump truck, identify four (4) safety critical systems that must be checked during pre-start. (4 marks) Mark your answer using a), b), c), d).

- a)
- b)
- c)
- d)

4. One of the Quarry Managers advises you that he must develop a new haul road. Using the schematic below, answer the following questions with reference to the known 'rules of thumb' for haul road design?



i) Providing that your fleet of trucks are matched, what is the recommended gradient design for the new haul road? (1 mark)

ii) Given that it will be a dual haul road, how will you design the width of the road? (2 marks)

iii) Provide details of your edge protection design (bund), regarding height, profile and construction method? (3 marks)

iv) Name two (2) additional controls you will implement at a switch back corner that is towards the bottom of the haul road? (2 marks)

5. An inspection of one of the new sites alerts you to an ongoing vehicle interaction hazard with overhead structures. Some controls are in place (signage and speed limit). However, it is agreed that more needs to be done to drive a change in culture. List another three (3) controls that could be implemented to lower the risk of collision with the structures? (3 marks) Mark your answer using a), b), c).



a)

b)

c)

## Section 4

**(Blast Management) (28 marks) (Essential)**

**Candidate will be required to get 18 out of 28 marks to have passed this section**

**Candidate must pass this section to deem competent in this exam paper.**

1. 'AS 2187.2 – 2006 Storage and Use' lists the following terms. In your own words what do these terms mean? (8 marks) Mark your answer using a), b), c), d).

a) Overpressure

b) Lead in line

c) Powder factor

d) Primer

a)

b)

c)

d)

2. Blasting knowledge – short questions

i) Hazards that could lead to ignition of explosives (capable of generating a spark or flame) should not be carried out within (x) metres of where explosives are being handled or stored? (1 mark) (Select the correct answer)

- 20 m
- 8 m
- 100 m
- 50 m

ii) What does L.P and M.S stand for when classifying detonators? (2 marks) Mark your answer using a), b).

a) L.P

b) M.S

a)

b)

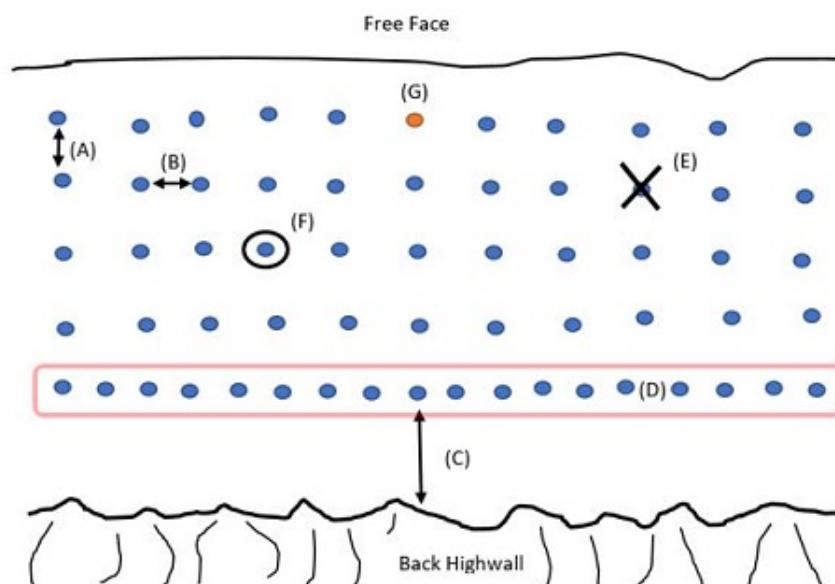
iii) What does the term reactive ground mean? (2 marks)

iv) Why do blast holes have a down the hole delay (typically 400ms)? (2 mark)

v) The Australian Standard requires all persons in the vicinity to be alerted of a pending blast. What is the primary means of achieving this immediately before a blast? (1 mark)

vi) You are loading a blast hole and the detonator lead (tail) is lost down the hole. The hole is 90 % charged, what is the most logical thing to do to fire the hole safely? (2 marks)

3. The following diagram is a drill plan from one of your new benches, it has a single free face. It is a basalt quarry and traditionally blasting has resulted in very good fragmentation. You plan to fire the shot as a 'V' blast.



Based on the diagram answer the following questions

i) What is the label (A) referring to? (1 mark)

ii) What is label (B) referring to? (1 mark)

iii) Falling debris is a known hazard when drilling and loading back row holes. A 'rule of thumb' offset distance is generally used to exclude activities. How would you calculate the distance of label (C)? (1 mark)

iv) The back row of the drill pattern (Label (D)) is a particular type of blasting, what is it called and why is it used? (2 marks)

v) Label (E) is a hole that has been lost (blocked and cannot be cleaned or loaded). Name two (2) options to fire the blast safely? (2 marks)

vi) Label (F) is a hole where the 'drill log' indicates there is a large (>1m) void. You have started loading the hole and you are losing explosives in the void? Name two (2) options to fire the blast safely? (2 marks)

vii) What is label (G) referring to? (1 mark)



## Section 5

### Operational Decision Making and Initiative (Health Management and Health Monitoring) (31 marks) (Desirable)

**Candidate will be required to get 19 out of 31 marks to have passed this section**

1. After reviewing the new sites Safety Management Systems and Health Control Plans it becomes clear they have limited reference to the control measures to ensure workers are 'fit' to carry out work. Most have no information on how the mine operator will manage risks associated with workers being impaired by fatigue and drug and alcohol. You have an existing Drug and Alcohol (D&A) policy and procedure from a previous employer, which you review with your quarry managers and workers.

Other than the policy (a statement of why the policy exists) list six (6) other sections (headings) that you would include in your D & A procedure. (6 marks) Mark your answer using a), b), c), d), e), f)

- a)
- b)
- c)
- d)
- e)
- f)

2. While reviewing last year's incident reports you become concerned that fatigue is mentioned repeatedly as a causal factor. You initiate a survey of your workforce to assess commuting distances and secondary employment. As a result, you commit to reviewing work practices and implementing a range of controls to assist with fatigue management. List five (5) controls you will consider. (5 marks) Mark your answer using a), b), c), d), e)

- a)
- b)

- c)

d)

e)

3. Bullying in the workplace is defined as 'repeated, unreasonable behaviour directed towards a worker or group of workers that creates a risk to health and safety. List three (3) examples of unreasonable behaviour that could constitute bullying. (3 marks). Mark your answer using a), b), c)

a)

b)

c)

4. As part of the 12 monthly follow-up process you conduct unannounced inspections of each new site to establish they are implementing the new agreed controls. You are confronted with the picture below as you arrive.



## Paper B – Legislation knowledge and application | Sep-2022

List three immediate actions you will take to manage the situation (3 marks) Mark your answer using a), b), c)

a)

b)

c)

5. It becomes immediately obvious that the Quarry Manager has no understanding of the risks associated with silica and the required controls. You initiate a line of questioning for all your Quarry Managers to complete.

i) What is silicosis? (2 marks)

ii) How do you establish the concentration of silica in the material you are mining? (2 mark)

iii) What is the national exposure standard for the following dust concentrations? (3 marks) Mark your answer using a), b), c)

a) Inhalable (mg/m<sup>3</sup>)

b) Respirable (mg/m<sup>3</sup>)

c) Silica (mg/m<sup>3</sup>)

a)

b)

c)

iv) What is the difference between inhalable and respirable dust? (2 marks)

v) Name two (2) 'positive pressure' respiratory protection equipment (RPE) devices. (2 marks) Mark your answer using a), b)

a)

b)

vi) What is 'fit' testing? (2 marks)

vii) When you extend shifts greater than 8 hours duration what happens to the TWA exposure standard for dust concentrations? (1 mark)

**End of Document**