28 August 2024

# Quarry Manager of mines other than underground mines or coal mines

## Examination for certificate of competence

*Paper A – Legislation Knowledge*

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## Exam instructions

MAKE SURE YOU SCROLL RIGHT DOWN TO READ ALL THE INSTRUCTIONS USING SCROLL BAR ---------->

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 2022

Explosives Act 2003

Explosives Regulation 2013

**Start Date and Time: 28 August 2024 0850hrs**

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

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

**Paper A - Legislative knowledge**

**Primary benchmarks (Focus Areas) include:**

**Focus Area 1.1** - Statutory function being examined and other relevant statutory functions and responsibilities

Focus Area 1.2 - Safety Management System requirements for mines in NSW, specifically;

- Principal Hazard Management Plans (PHMP)

- Principal Control Plans (PCP)

- Specific control measures for mining, mechanical and electrical

Focus Area 1.3 - Incident reporting requirements and protocols

Focus Area 1.4 - Work, Health & Safety requirements and regulations within the framework as it applies:

• General - WHS Act and Regulation

• Mine specific - WHS (Mines and Petroleum Sites) Act and Regulation

• Hazard specific relevant to the function e.g., Explosives Act and Regulation, Radiation Control Act and Regulation etc

• Legislated codes & standards

Focus Area 1.5 - Relevant current Australian and international standards, codes of practice, and alerts and bulletins

## Marking criteria

**A candidate will be deemed competent in this paper if they have achieved the pass mark of 86/140 (61.4%).**

If successful, the candidate will be deemed competent in;

Domain 1 - Statutory functions & regulatory requirements

Knowledge and understanding of their statutory function, or relevant others, and related WHS regulatory requirements

In answering the questions candidates will be required to demonstrate a satisfactory knowledge of the legislation that applies to the statutory position of Quarry Manager at a mine other than an underground mine or coal mine. This will also include an assessment of their understanding of other statutory positions at the mine and general WHS legislation as it applies to mining operations.

**All 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

1. The Quarry Manager of a Tier 1 Quarry takes leave (overseas) and is no longer capable and available of exercising the statutory function. What two options does the mine operator have to ensure that 'mining operations' continue to operate and are supervised lawfully? (2 marks)

   Mark your answers using a), b)

2. What is unique about a 'key statutory function' as opposed to other statutory function? And what must occur if there is no nominated 'key stat' person? WHS(MPS)R 2022, section 132 & 133? (2 marks)

   Mark your answers using a), b)

3. A mine operator must appoint a statutory Electrical Engineer when the total connected electrical power at the mine is equal to or greater than: (1 mark) (select the correct answer)
   - 10 megawatts
   - 1000 watts
   - 1000 kilowatts
   - 1000 ohms

4. The requirement for nomination to exercise the statutory function of electrical tradesperson at a quarry is that the individual nominated must: (1 mark) (select the correct answer)
   - have a supervisor certificate that authorises the doing of electrical wiring work
   - have a proficiency certificate (issued by State Training Services) in an electrical trade
   - have been continuously employed as an electrical tradesperson at a mine since 20 December 2005
   - Any of the above

5. The mine operator of a Tier 1 quarry must appoint a statutory Mechanical Engineer: (1 mark) (select the correct answer)
   - a) to develop and review the standards for mechanical practices
   - b) to supervise the installation, commissioning, maintenance, and repair of mechanical plant
   - c) both a) & b)
   - d) Not required to be appointed as a statutory position at a tier 1 quarry

6. To be nominated as the statutory mining surveyor, the individual must have qualifications as set out in the WHS(MPS)R 2022, schedule 10. Which include being? (1 mark) (select the correct answer)
   - A registered 'mining' surveyor
   - A person with surveying experience who works for a licensed surveyor
   - A registered 'land' surveyor
   - any of the above

7. The WHSA2011 section 28, details four duties of workers while they are at work, list three (3) of these duties? (3 marks)

   Mark your answers using a), b), c)

8. The WHS(MPS)R 2022, section 125 lists several matters that the mine operator must notify the Resources Regulator of (Notification of other reportable matters) **e.g. one example is the "suspension of mining operations"**
   List four (4) other matters. (4 marks)

   Mark your answers using a), b), c), d)

9. At what frequency is a Quarry Manager's practicing certificate required to be renewed? (1 mark)
   - 2 years
   - 5 years
   - 3 years
   - 10 years

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

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

12. Give another example of a PCBU at a quarry site? (1 mark)

13. Can a duty imposed under WHS legislation be transferred to another person? WHSA2011 section14 (1 mark) (Select the correct answer)
    - Yes
    - No
    - Only if the duty holder has insufficient capability to satisfy the duty
    - If authorised by the PCBU

## Section 2

14. The WHS(MPS)R 2022, schedule 1 "Principal Hazard Management Plans" summarises eight (8) matters that must be considered in developing the control measures to manage the risks of roads or other vehicle operating areas. List six of these matters (6 marks)

Mark your answers using a), b), c), d), e), f)

15. The WHS(MPS)R 2022, schedule 1 “Principal Hazard Management Plans” summarises eight (8) matters that must be considered in developing the control measures to manage the risks of fire or explosion. List six of these matters (6 marks)

    Mark your answers using a), b), c), d), e), f)

16. One Principal Control Plan (PCP) required for a tier 1 quarry is the Health Control Plan (HCP). List the four other PCP’s that must be prepared and form part of the Safety Management System for a large hard rock quarry? (4 marks)

    Mark your answers using a), b), c), d)

17. The WHS(MPS)R 2022, schedule 2 “Principal Control Plans” summarises five (5) matters that the Health Control Plan must address. List four (4) of these matters (4 marks)

    Mark your answers using a), b), c), d)

18. You have been nominated as the new Quarry Manager of a Tier 1 site and you plan on reviewing all of the Principal Hazard Management Plans (PHMP’s) to ensure they comply with the requirements of WHS(MPS)R 2022, section 28 (3) “Preparation of Principal Hazard Management Plans”.
    The section details nine (9) components that must be included in each Principal Hazard Management Plan when it is being prepared. List six (6) of these components? (6 marks)

    Mark your answers using a), b), c), d), e), f)

19. The WHS(MPS)R2022, section 39 “Inspections” states…
    The mine operator of a mine must ensure arrangements are in place for the regular inspection of the working environment of the mine for the purposes of the WHS laws Section 39 (2) requires four (4) things to be taken into account when making these arrangements. List the four (4) things that have to be taken into account? (4 marks)

    Mark your answers using a), b), c), d)

## Section 3

20. You have just been notified that an excavator operator has backed into a trench and the excavator has laid on its side. The operator’s access door is on the bottom side and the operator is trapped, (picture below).


This incident is classified as a Dangerous Incident pursuant to WHS(MPS)A 2013 section 14 and WHS(MPS)R2022 section 190.

The definition of a dangerous incident as described in WHS(MPS)R 2022 section 190 is …

For the WHS (MPS) Act, section 14(c), an incident in relation to a _____ that exposes a worker or other person to a _____ risk to a person's health or safety emanating from an _____ or _____ exposure to one or more of following is a dangerous incident. (4 marks) (List the four missing words)

Mark your answers using a), b), c), d)

21. What are your reporting requirements to the Regulator with respect to this dangerous incident? WHS(MPS)A, section 15? (4 marks)

    a) Time frame?

    b) How?

    c) Point of contact?

    d) Follow-up information supplied via?

    Mark your answer using a), b), c), d)

22. With respect to this type of incident, can you disturb the scene to rescue the injured worker? (1 marks) (Select the correct answer)
    - Yes
    - Never
    - Only with permission of emergency services
    - Only if it can be done without disturbing the scene

23. After rescuing the worker and 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)

24. The WHSR 2017, section 43 and the WHS(MPS)R2022, section 91 requires the PCBU (mine operator) to prepare, implement and maintain an emergency plan. With respect to these obligations, answer the following questions.

    What schedule in the WHS(MPS)R 2022 must you consider when developing your emergency plan? (1 mark)

25. Other than after a significant revision, how often must the emergency plan be tested? (1 mark)

26. When must the mine operator review their emergency plan? WHS(MPS)R, section 97 (2 marks)

    Mark your answers using a), b)

27. In your own words list eight steps that describe the process you would use for preparing (developing) and implementing an emergency plan for a new site? Give a brief description of what each step will include, considering the life cycle of an emergency plan? (16 marks)

    Mark your answers using a), b), c), d), e), f), g), h)

28. The WHS(MPS)R2022 provides a definition of a 'high potential incident' in section 124 5 (a)… "An event referred to in section 190(1) that would have been a dangerous incident if a person were reasonably in the _____at the time when the incident or event occurred and in _____ a person could have been in the vicinity at the time (2 marks) (List the two missing words)

    Mark your answers using a), b)

29. List three (3) notification requirements that relate to explosives incidents. Include the legislation they are being reported under e.g Dangerous incident WHS(MPS)R section 190 (6 marks)

Mark your answers using a), b), c)

30. Fill in the blank.

    A PCBU at a workplace must ensure that _____ of workers are trained to administer first aid at the workplace (1 mark)

## Section 4

31. Using the list of legislation below

    **(A) Work Health and Safety Act 2011**
    **(B) Work Health and Safety Regulation 2017**
    **(C) Work Health and Safety (Mines and Petroleum Sites) Act 2013**
    **(D) Work Health and Safety (Mines and Petroleum Sites) Regulation 2022**
    **(E) Explosives Act 2003**
    **(F) Explosives Regulation 2013**

    Nominate where you would find the most relevant legislative information relating to each of the following matters: (10 marks)
    a) Communication requirements between incoming and outgoing shifts

    b) Confined space controls

    c) Scaffolding

    d) Explosive licence types and requirements

    e) Management of falling objects

    f) Establishment of Mine Competence Board

    g) Issuing of a general workplace improvement notice (S191)

    h) Remote or isolated work

    i) Duty to inform workers about safety management system

    j) Notification of high-risk mining activities to the Regulator

    Mark your answers using a), b), c), d), e), f), g), h), i), j)

32. The WHSA 2011 section 17, “Management of Risks” 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 answers using a), b)

33. List four (4) relevant matters that must be taken into account (considered) when determining what is reasonably practicable? WHSA2011 section 18 (4 marks)

    Mark your answers using a), b), c), d)

34. The WHSA section 19 (3) (a) states “a Person Conducting a Business or Undertaking (PCBU) must ensure, so far is reasonably practicable: “the provision and maintenance of a work environment without risks to health and safety”.
    List four (4) additional provisions from Section 19 (3) WHS Act 2011, that contribute to a safe workplace (4 marks)

    Mark your answers using a), b), c), d)

35. From 1 January 2024, (PCBUs) are required to provide audiometric testing to workers who are required to frequently wear hearing protection at work.
    A baseline test is required within ‘X’ from starting work (1 mark) (Select the correct answer)
    - 1 month
    - 6 months
    - 1 year
    - 3 months

36. From 1 January 2024, (PCBUs) are required to provide audiometric testing to workers who are required to frequently wear hearing protection at work.
    A follow-up test is required at least every ‘X’? (1 mark) (Select the correct answer)
    - 6 months
    - 1 year
    - 2 years
    - 5 years

37. 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)
    - 115 dB
    - 85 dB
    - 75 dB
    - 150 dB

38. 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

39. Pursuant to WHS legislation an Inspector may issue a range of notices to assist them with the facilitation of their enforcement powers. Describe why an inspector may issue each notice and for what purpose? (10 marks)

    a) Section 198 – Non disturbance notice

    b) Section 191 – Improvement notice

    c) Section 195 – Prohibition notice

    d) Section 23 – Notice of concern

    e) Section 155 – Notice to obtain information

    Mark your answers using a), b), c), d), e)

40. After receiving an improvement notice WHSA 2011 section 191, the recipient must as soon as possible do two things with the notice? List one of the requirements. (1 mark)

41. WHSA2011 section 194 allows for the extension of time for compliance with an improvement notice (S191). This extension of time can only occur if the request is made? (1 mark)

42. The operator of a mine site must keep a record for the mine site WHS(MPS)R section 129. List 4 things the 'mine record' must contain? (4 marks)

    Mark your answers using a), b), c), d)

43. Where an Australian Standard is listed in WHS legislation, does the mine operator have to comply with the standard? (1 mark)
    - Yes
    - Must consider and evaluate its requirements
    - Guidance only
    - No, providing equivalent controls are implemented

44. In your own words explain what a 'Code of Practice is' and how it relates to WHS legislation? (2 marks)

45. Which of the following Australian Standards would you use when reviewing your Electrical Engineering Control Plan – (EECP) Electrical safety (1 mark)
    - AS/NZS 3000
    - AS/NZS 4024
    - AS/NZS 1657
    - AS 1940

46. Which of the following Australian Standards would you use when reviewing your 'guarding standards' in your Mechanical Engineering Control Plan (1 mark)
    - AS/NZS 1657
    - AS 3868
    - AS/NZS 4024
    - AS 2444

47. For a shotfirer to blast at your quarry they must hold a: (1 mark)
    - NSW Blasting Explosives Users Licence (BEUL)
    - An interstate qualification (licence)
    - A qualification issued by the mine operator
    - A statement of attainment issued by a registered training organisation (RTO)
    - Any of the above

48. AS 2187.2 "Explosives – Storage and Use" makes reference to the management of blast fume. In your own words describe what blast fume is and how you manage it? (2 marks)

49. Ground vibration limits for human comfort chosen by some Regulatory Authorities are listed in AS 2187.2 Table J4.5(A). For a site that has been operating for greater than 12 months, the recommended vibration limits for peak component particle velocity (mm/s) at an adjacent occupied house are: (1 mark)
    - 50mm/s for 95% of blasts per year 100mm/s maximum unless agreement is reached
    - 15 mm/s for 95% of blasts per year 30 mm/s maximum unless agreement is reached
    - 0.5 mm/s for 95% of blasts per year 1.0 mm/s maximum unless agreement is reached
    - 5mm/s for 95% of blasts per year 10mm/s maximum unless agreement is reached

50. When explosives are stored in a permanent magazine at a mine site the mine operator must ensure that the magazine is subject to a current? (1 mark)
    - 'Licence to store' issued by NSW Resources Regulator
    - 'Licence to store' issued by Safe Work NSW
    - 'Inspection and approval by a competent person' - no licence required
    - 'Inspection and approval by an authorised person' - no licence required

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Legislation to be assessed:

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Explosives Regulation 2013

Start Date and Time: 28 August 2024 1230hrs

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

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Paper B - Legislation application and Technical knowledge

Primary benchmarks (Focus Areas) include:

Focus Area 2.1 - Apply technical knowledge and understanding to the development and implementation of the mine Safety Management System

Focus Area 2.2 - Apply working knowledge and technical understanding of effective controls for the management of hazards, safe operation, inspection and maintenance of systems, plant and equipment, relevant to the statutory function, such as:

- life risks/hazards and controls
- cycle management plans
- change management plans
- review of control measures.

Focus Area 2.3 - Mining/Engineering design and planning through the development, implementation and/or application of technical knowledge

Focus Area 2.4 - Training and instruction of workers

Focus Area 3.1 - Assess, inspect and monitor the workplace to identify and manage hazards, risks, emerging issues and changing work conditions through the application of a hierarchy of controls

Focus Area 3.3 - Management of high-risk activities or work

Marking criteria

A candidate will be deemed competent in this paper if they have achieved the pass mark of 110/170 (64.7%).

If successful, the candidate will be deemed competent in;

Domain 2 - Application and implementation of hazard management through technical knowledge.

Domain 3 - Situational Awareness and risk management.

In answering the questions candidates will be required to demonstrate a satisfactory knowledge of the technical hazards and controls required to manage risks if they were appointed to the statutory position of Quarry Manager at a mine other than an underground mine or coal mine. This will also include the application of the legislation during the assessment and implementation of controls.

They will also be required to demonstrate an awareness of relevant standards, codes of practice and/or MDGs for each answer if applicable.

All 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

1. You are a Quarry Manager and have a new graduate engineer who has commenced her placement for the next 12 months. At the same time, you have engaged a new blasting contractor due to previously repeated poor performance. You have tasked the new engineer with reviewing your Explosives Control Plan and on boarding the blast contractor. Before she commences you need to establish her working knowledge of quarry blasting practises.

   In your own words explain what the following terms mean (10 marks)

   a) ANE

   b) Critical diameter (in relation to explosives)

   c) Sleep time (not sleeping a shot)

   d) Primer assembly

   e) Drop cut

   Mark your answers using a), b), c), d), e)

2. As part of the review you are considering moving to an electronic blasting system. List four (4) benefits of electronic blasting over non-electric delay systems? (4 marks)

   Mark your answers using a), b), c), d)

3. You would like her to focus on reducing your blasting powder factor. What might the typical powder factor for a competent granite production shot be kg/m3? (1 mark)

   - 0.7 - 0.9
   - 1.7 – 1.9
   - 6.0 – 7.0
   - 0.2 – 0.25

4. Your last blast has left considerable toe in the floor immediately underneath (in front of) the next production blast highwall. You work with your new contractor and engineer to conduct a risk assessment for the removal of the toe safely in conjunction with the next production shot.

   List four (4) additional hazards that you will have to include in the risk assessment to manage this firing safely? (4 marks)

   Mark your answers using a). b), c), d)

5. Your graduate engineer is also required to complete a corporate review of your tyre handling procedures in response to a safety alert received from the NSW Resources Regulator. A tyre rim has ejected during reinflation after maintenance activities were completed. (photo below)

List six (6) considerations (controls) that a mine operator should include in their Safety Management Plan (SMS) when managing heavy earthmoving wheel assemblies and the inflation process. (6 marks)

Mark your answers using a), b), c), d), e), f)

## Section 2

6. After winning a tender to supply 1 million tonnes of fill sand from an adjacent deposit to your quarry you have requested an internal transfer of three second-hand Front-End Loader's (988 equivalent) from within your business group.
You become aware that machines of this type and size have not been used on site previously.
What site processes should be completed prior to the loaders going to work? (List four processes) (4 marks)

Mark your answers using a), b), c), d)

7. The table below lists “key risk areas” identified in MDG15 - “Mobile Plant Design Guideline for use of transportable plant on mine sites”. For each key risk area list the controls required on the Front-End Loaders or in your system prior to the use of this type of plant on site? (26 marks)

   Insert a table in your answers section and present your answers as per the table below.

| Key Risk Area | Expected control |
|---|---|
| Fire | - |
| | - |
| | - |
| | - |
| Unplanned Movement or collision | - |
| | - |
| | - |
| | - |
| Safe means of egress/access | - |
| | - |
| | - |
| | - |
| Isolation | - |
| | - |
| Safety critical systems | - |
| | - |
| | - |
| | - |
| Operator’s cabin and protection | - |
| | - |
| | - |
| | - |
| Human comfort and operational controls | - |
| | - |
| | - |
| | - |

## Section 3

8. You have successfully been recruited as the Quarry Manager of a new greenfield site, which is in the final stages of construction. Initially you have been tasked with developing the traffic management plan for the new crushing and screening plant. This will include considering the requirements of WHS(MPS)R section 32 ‘Movement of Mobile Plant’.

For each of the following areas, list four (4) **engineering controls** that you will implement to minimise interaction incidents (6 marks)

a) Pedestrians in and around the Heavy Mobile Equipment (HME) 'Go Line'
b) Collision between mobile plant and crushing and screening structures
c) Collision between Heavy Mobile Equipment (HME) and light vehicles (LV) around the plant

Mark your answers using a), b), c)

9. Lighting is an important control when sites are multi shift operations. With respect to your road network, where will you install lighting to enable workers to safely move around the site on afternoon shift. List four (4) key locations (4 marks)

   Mark your answers using a), b), c), d)

10. Your quarry is embarking on the development of a large second pit, which will require the removal of 15 metres of overburden. This material will be placed in a new waste dump that will be designed for the life of the operation and be rehabilitated in accordance with the site's development consent conditions.
    During the risk assessment process, list six (6) key design criteria (headings) that must be included in the risk assessment to ensure the dump construction is stable, non-polluting and not prone to deterioration (6 marks)

    Mark your answers using a), b), c), d), e), f)

11. During the initial stages of the new pit design it becomes apparent that the orientation of the regional geological structures is going to influence face development direction, bench height and overall slope angle.

    Briefly describe the face development orientation in relation to the regional geological structures and why you are choosing that direction? (3 marks)

    Mark your answers using a), b), c)

12. List three (3) other criteria that will be used when determining the bench height design? (3 marks)

    Mark your answers using a), b), c)

13. The geology (rock type) of the new pit is considerably different to your current basalt operation.

    You are going to have to review your existing Health Control Plan (HCP) and Principal Hazard Management Plan (PHMP) for dust and other Airborne Contaminants, starting with an analysis of the rock.

How do you establish the concentration of silica or other contaminants in the material you are mining? (1 mark)

14. You establish a concentration of 55% free crystalline silica for all samples. Once mining activities commence what must you do to establish that workers are not being exposed to an atmosphere that may exceed a national standard (2 mark)

    Mark your answers using a), b)

15. What is the national exposure standard for the following dust concentrations, (3 marks)

    a) Inhalable (mg/m3)

    b) Respirable (mg/m3)

    c) Silica (mg/m3)

    Mark your answers using a), b), c)

16. During your workforce consultation, you note that several people have facial hair. Name two (2) controls you could provide workers with facial hair to ensure they are appropriately protected from contaminated workplace atmospheres. (2 marks)

    Mark your answers using a), b)

## Section 4

17. Your Board has tasked you with developing a training package for multiple sites that is designed to educate workers in the required prestart inspection processes for ensuring that conveyors in your crushing and screening plants are fitted with 'safety critical controls' and they are tested and maintained.

    List four (4) 'safety critical controls' for conveyors you will include in the training package and include two (2) key design parameters for each control that workers would be expected to check? (12 marks)

| Safety critical control | Key Design Parameter |
|---|---|
| a) | i) |
| | ii) |
| | |
| b) | i) |
| | ii) |
| | |
| c) | i) |

| | |
|---|---|
| | ii) |
| | |
| d) | i) |
| | ii) |

18. Describe how your prestart inspection process will deal with the varying severity of defects (this includes all controls) and the ongoing operation of the plant? (8 marks)

19. As a result of a recent prestart inspection campaign the NSW Resources Regulator has made the following recommendation.
"Mine **operators should review the tracking of conveyor belts on their sites considering the hierarchy of c**ontrols and implement engineering controls to ensure workers are not exposed to the risk of entanglement"
Explain what this statement means and what instruction and guidance you will include in your training package to ensure workers are not exposed to an entanglement hazard when tracking conveyor belts? (5 marks)

20. The Board has now asked you to review the Safework Australia - Code of Practice (COP) for "Managing psychosocial hazards at work" so you can put a presentation together for your supervisors. The COP lists some common examples of workplace risks that can give rise to psychosocial hazards (one example is unreasonable job demands). List five (5) other risks that should be considered when completing a risk assessment to identify psychosocial hazards. (5 marks)

    Mark your answers using a), b), c), d), e)

## Section 5

21. After a recent run of incidents, you have identified that your overall risk management strategy for identifying and controlling hazards is not being consistently implemented. You have decided to revisit each process with your supervisors to ensure relevance and application.

    All of the processes are underpinned by the 'hierarchy of controls' methodology.

    Other than eliminate list the five (5) hazard controls in the correct decreasing priority that make up the 'hierarchy of controls' and list an example of a control when managing dust in the workplace (10 marks)

| HOC | Example |
|---|---|
| a) | |
| b) | |
| c) | |

| | |
|---|---|
| d) | |
| e) | |

22. Your current risk management strategy includes the following processes. Briefly describe each process and give an example of how and when they would be used on site? (10 marks)
    a) Broadbrush risk assessment:
    b) Job Safety Analysis
    c) TARP
    d) Take 5 (informal)
    e) Change management process

    Mark your answers using a), b), c), d), e)

23. Given the components of the risk assessment listed below describe what a "Bow Tie" risk assessment looks like and how it is designed to work? (6 marks)
    Threats, Consequences, Mitigating Controls, Preventative Controls, Material Unwanted Event (MEU)

24. Where the Material Unwanted Event (MUE) is "Preventing injury to a driver in a vehicle collision", list three (3) preventative controls and three (3) mitigating controls? (6 marks)
    Preventative Controls (Pre-incident)
    i)
    ii)
    iii)

Mitigating Controls (After incident)
    i)
    ii)
    iii)

    Mark your answers using i), ii), iii) for each of the controls

25. Most risk assessments will identify multiple controls. The bow tie risk assessment is particularly useful when determining which are 'critical controls'. In your own words describe what a 'critical control is'? (3 marks)

## Section 6

26. Your site has commenced planning for a programme of major shutdown work that is going to include the replacement of a secondary crusher feed chute and the relining of an overhead bin.

The planned work is also going to involve ‘hot work’ inside the bin to replace the linings. This is considered to meet the definition of a ‘confined space’. In your own words describe what a confined space is? (4 marks)

27. How will you ensure that the risks associated with working in the confined space are managed, including the hot work activities? List eight (8) key controls that you will put in place? (8 marks)

    Mark your answer using a), b), c), d), e), f), g), h)

28. The final placement of the feed chute will involve workers using fall arrest equipment (harnesses). Upon review, you identify that your storage, inspection and use procedures for harnesses are poor and need upgrading. List two (2) key controls to manage the storage, inspection and use of anchor points when using harnesses? (6 marks)

    Storage -

    a)

    b)

    Inspection -

    a)

    b)

    Anchor points -

a)

b)

Mark your answers using a), b) for each of the items listed above (Storage, Inspection and Anchor points)

29. If a worker experiences an electric shock whilst performing the ‘hot work’ (welding), what action must you take? List two items (2 marks)

    Mark your answers using a), b)

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