

CANDIDATE NUMBER:	(write in from your letter)
EXAMINATION:	Mining engineering manager underground mines other
	than coal mines

EXAMINATION PAPER: MEM1 – (PART A)

Legislation knowledge

DATE: Wednesday 24 February 2021

EXAMINATION

BOOKLET

CANDIDATE NUMBER:	(write in from	your letter)
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Question	Number	Available mark	Mark	Marked by (full name)	Summary comments to justify, as necessary
	a	1			
	b	1			
	С	1			
	d	1			
	e	1			
1	f	1			
	g	1			
	h	1			
	i	1			
	j	1			
	Total	10			
	a	4			
2	b	6			
	Total	10			
	a	5			
	b i)	3			
3	b ii)	1			
	b iii)	1			
	Total	10			
	a	4			
4	b	1			
	С	5			
	Total	10			

	a	6	
5	b	4	
	Total	10	
6	Total	10	
7	Total	10	
PAPER	TOTAL	70	Marks checked by:



(MEM1)

Work Health and Safety (Mines and Petroleum Sites) Act 2013 Work Health and Safety (Mines and Petroleum Sites) Regulation 2014

EXAMINATION FOR CERTIFICATE OF COMPETENCE

Mining engineering manager of underground mines other than coal mines

MEM1 – (PART A)

Legislation knowledge

Wednesday 24 February 2021 9:00am to 11:00am (120 min)

Glendarra 2 Conference room, Tocal College

INSTRUCTIONS TO CANDIDATES

All questions are to be attempted

All questions are of equal value, but parts of questions may vary in value.

All answers are to be written in this booklet ONLY

Candidates must provide reference to all relevant legislation in their answers where applicable.

Note that some questions require answers related to hazards and control measures that are not specified in legislation but the answers should reflect the context of legislated requirements.

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

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

Explosives Australian Standard AS 2187

To gain a pass in this examination paper, candidates must receive a pass mark of 60 %.

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
- Answers are to be written in the allocated spaces within this booklet ONLY
- 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

Mining Engineering Manager of underground mines other than coal mines – MEM1 – September 2019	
QUESTION 1 (10 marks)	
Each multiple choice question has one answer. Circle the appropriate answer.	
 a) What is the lowest specific wet bulb temperature at which legislation requires the mine operator to implement control measures to manage heat stress to workers? (1 mark) 	
a) 27 deg Celsiusb) 27.5 deg Celsiusc) 29 deg Celsiusd) 29.5 deg Celsius	
/1	
b) What is the maximum permissible legislated respirable dust—exposure for an 8 hour shift? (1 mark)	
a) 3 milligrams per cubic metre of air b) 2.5 milligrams per cubic metre of air c) 1.5 milligrams per cubic metre of air d) 10 milligrams per cubic metre of air	
c) What is the maximum permissible legislated inhalable dust—exposure for an 8 hour shift? (1 mark)	
 a) 3 milligrams per cubic metre of air b) 2.5 milligrams per cubic metre of air c) 10 milligrams per cubic metre of air d) 15 milligrams per cubic metre of air 	
/1	
d) What is the max perm legislated diesel particulate—exposure for an 8 hour shift? (1 mark)	
 a) 0.3 milligrams per cubic metre of air b) 0.5 milligrams per cubic metre of air c) 1.0 milligrams per cubic metre of air d) 0.1 milligrams per cubic metre of air 	
/1	
e) What is the legislated minimum distance from a magazine that rubbish can be stored? (1 mark)	
a) 4m b) 5m c) 10m d) 18m	

/1

Mini	ng engineering	manager underground mines other than coal mines – MEM1 (Part A) – February 202	21
f)	means erect erected to su	Health and Safety Regulation 2017 (WHS Reg 2017) scaffolding working, altering or dismantling a temporary structure that is or has been apport a platform and from which a person or object could fall more that om the platform or the structure. (1 mark)	n
	b) c)	1.8m 2m 3.3m 4m	
			/1
g)	What is the I detonator ma	egislated minimum distance a vehicle can be from an underground agazine? (1 mark))
	b) c)	6m 10m 12m 18m	
	-,		/1
h)		ncipal Hazard Management Plan - Fire or Explosion needs is required to material that has a flash point at or less than: (1 mark)	to
	b) c)	52.8 deg Celsius 55.5 deg Celsius 58.0 deg Celsius 61.0 deg Celsius	
			/1
i)	(M&PS) Act	the Work Health and Safety (Mines & Petroleum Sites) Act 2013 (WH 2013) when does a mine NOT require a Mining Engineering Manager opointed? (1 mark)	S
	b) c)	Conducting surface exploration When processing but not mining When rehabilitating None of the above	
	u)	None of the above	/1
j)		appoint a statutory Electrical Engineer when the total connected electrical engineer when the total electrical engineer when the total engineer when the total electrical engineer when the electrical engineer electrical engineer electrical electrical engineer electrical engineer electrical ele	rical
	a) b) c) d)	10 megawatts 5 megawatts 1000 kilowatts 1000 ohms	
	ŕ		/1

QUESTION 2 (10 marks)

a) You have been asked to design a new underground magazine for the storage of both detonators and explosives. Sketch out a design for the magazine.
 The design should include legislated angles from any active roadway, location of any barriers to prevent vehicle access, location of any return air regulator, the direction of closure for any gates, the legislated colour of walls, any mandated dimensions for storage bays and backs and any legislated minimum distances. The sketch does not need to be to scale.

 (0.5 marks per correct answer, up to 4 marks)

 AS2187 lists five pieces of infrastructure and ground conditions a magaz segregated from. List 3 of these. 	tine must be (6 marks)
UESTION 3	(10 marks)
nis mine example will be used for questions 3 and 4.	
ou are the Mining Engineering Manager (MEM) of a small narrow vein gold modified Avoca mining method, producing 400,000 tpa of ore, with a fleet of 4 to 17T loaders 1 x jumbo, 1 x sprayer, 1 x agitator, 1 x longhole drill.	_
a) You need to develop a Ventilation Control Plan (VCP) for the mine. List VCP must contain according to Work Health and Safety (Mines & Petrol Regulation 2014 (WHS (M&PS) Reg 2014) Cl 62(3) (you do not need to	leum Sites)
legislation exactly, a paraphrasing of each sub clause is acceptable)	(5 marks)

	g engineering manager underground mines other than coal mines – MEM1 (Part A) – February 2021	
	I have a graduate mining engineer who has just finished their underground time and now be the ventilation engineer. (5 marks)	k
i)	What training will you provide them so they can effectively manage the mine's	
,	ventilation system in accordance with the mine's legislative responsibilities?	
	(3 marks))
ii)	What datasets will you expect them to use to reconcile the ventilation system?	
ii)	What datasets will you expect them to use to reconcile the ventilation system? (1 mark)	
ii)		

Mining	g engineering manager underground mines other than coal mines – MEM1 (Part A) –	February 2021
iii)	Production rates are set to increase with an extra 29t diesel loader a diesel trucks being added to the fleet. The existing primary circuit is a designed to manage this increase in diesel power. What changes to be required before the extra fleet is introduced to the mine? (1 n	already
		/1
QUEST	TION 4	(10 marks)
a new of The ore what the certain a manage a) Whice	ard has just given approval and funding to conduct a bankable feasibility brebody at the same operation discussed in question 3. Body abuts old workings where mining finished in approximately 1910. The mine thinks are the complete survey records of the old mine, though reas to their accuracy. You have convened a risk assessment to determine the risks old workings pose to worker health and safety. The minimum of 4 skillsets would you include in the workers involved in a sament to ensure appropriate persons have been used in the risk assessment to ensure appropriate persons have been used in the risk assessment.	You have no one is ne how you will ny risk

Mining engineering manager underground mines other than coal mines – MEM1 (Part A) -	- February 2021	
) What is the principal hazard that old workings potentially pose to workers?	(1 mark)	
		/*
What controls could you put in place to manage this hazard?	(5 marks))
		/!

Mining engineering manager underground mines other than co	al mines – MEM1 (Part A) – February 2021
QUESTION 5	(10 marks)
Provide references to the relevant legislation and using	your own words in your answer:
 a) A Principal Hazard Management Plan as per WHS (to describe how 9 separate sub clauses are managed Describe 6 of those sub-clauses. (your answer does exactly, a paraphrasing of each sub clause is accepted.) 	ed with regard to the principal hazard. not need to quote the legislation
	-
	-
	/6

Mining engineering manager underground mines other than coal mines – MEM1 (Part A)	– February 2021
b) Describe four situations where legislation requires the mine operator to Principal Hazard Management Plan?	review a (4 marks)
	/4

Mining engineering manager underground mines other than coal mines – MEM1 (Part A) – February 2021		
QUESTION 6 (10) marks)	
In relation to WHS (M&PS) Reg 2014 CI 33(2) a high risk activity notification must de relevant aspects of the activity. Name five of those sub clauses. (10	etail 7 O marks)	
	/10	

Mining engineering manager underground mines other than coal mines – MEM1 (Part A	A) – February 2021
QUESTION 7	(10 marks)
ist 10 possible dangerous incidents as is defined in WHS (M&PS) Reg 20.	14 Cl 179. (10 marks)

Mining engineering manager underground mines other than coal mines – MEM1 (Part A) – Fel	oruary 2021
BLANK PAPER TO WRITE ANSWERS THAT YOU COULD NOT FIT INTO THE PROVIDED – INDICATE QUESTION NUMBER AT START OF ANSW	
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CANDIDATE NUMBER:	(write in from your letter)
EXAMINATION:	MINING ENGINEERING MANAGER UNDERGROUND MINES OTHER THAN COAL MINES
EXAMINATION PAPER:	MEM2 – (PART B)
	Legislation application
DATE:	Wednesday 24 February 2021

EXAMINATION

BOOKLET

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CANDIDATE NUMBER:	(write in from your letter
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Question Number	Mark	Available mark	Mark	Marked by <i>Name</i>	Summary comments to justify, as necessary
	a	2			
1	b	5			
	С	8			
	Total	15			
	a i)	4			
2	a ii)	4			
2	b i)	3			
	b ii)	4			
	Total	15			
PAPER	TOTAL	30			Marks checked by:



(MEM2)

Work Health and Safety (Mines and Petroleum Sites) Act 2013 Work Health and Safety (Mines and Petroleum Sites) Regulation 2014

EXAMINATION FOR CERTIFICATE OF COMPETENCE

MINING ENGINEERING MANAGER of underground mines other than coal mines

MEM2 – (PART B)

Legislation application

Wednesday 24 February 2021 12:00pm to 1:00pm (60 min)

Glendarra 2 Conference room, Tocal College

INSTRUCTIONS TO CANDIDATES

All questions are to be attempted

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Candidates must provide reference to all relevant legislation in their answers

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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
Explosives Australian Standard AS 2187

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ANSWER BOOKLET

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QUESTION 1 (15	marks)	
You are the Mining Engineering Eanager (MEM) of an underground non-coal mine a receive a phone call at 2:10 am to inform you that a jumbo offsider has walked into unsupported ground while carrying mesh and has been struck and killed by a rock wapproximately 2 Tonnes		
 a) What does the WHS (M&PS) Act 2013 and Reg 2014 respectively require do immediately? (2) 	you to marks)	
b) What would be your actions over the next 6 hours as the MEM beyond you answer to Q8a? (5		/2
		/5

c) By 3:00 pm that same day, the regulator has collected relevant evidence and released the scene. What will be your actions (including what documents legislation require to review) over the next month to get the mine back into operation? (8 m	l arks)
(C	
	/8

QUESTION 2	(15 marks)
You are the MEM, holder of a sub level cave mine product You have the time to review the mine's Safety Manageme states that the SMS must describe the arrangements in plaprotect workers and other persons at the mine or petroleur safety from work carried out at the mine or petroleum site. a) Use dot points to outline, what you expect the SMS foreman and how they will supervise underground to the supervise of the	ant System (SMS). Legislation ace for the supervision required to m site from risks to their health and to state for shift supervisors and
i) Shift supervisors	(1 mark each, up to 4 marks)
	/4
ii) Foreman	(1 mark each, up to 4 marks)
	/4

Mining Engineering Manager of underground mines other than coal mines – MEM2 – February 2021			
b) As MEM how will you hold your shift supervise safety management aspects of their roles?	sors and foreman accountable for the		
i) Shift supervisors	(1 mark each, up to 3 marks)		
	/3		
ii) Foreman	(1 mark each, up to 4 marks)		
	/4		
END OF OUTSTIONS			

END OF QUESTIONS

Mining Engineering Manager of underground mines other than coal mines – MEM2 – February 2021			
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