



**CANDIDATE NUMBER:**                      **EVTNOT00** \_\_\_\_\_ **(write in from your letter)**

Question Number	Available mark	Mark	Marked by (full name)	Summary comments to justify, as necessary
<b>1</b>	a	3		
	b	2		
	c	2		
	d	3		
	<b>Total</b>	<b>10</b>		
<b>2</b>	a	5		
	b	5		
	<b>Total</b>	<b>10</b>		
<b>3</b>	a	9		
	b	1		
	<b>Total</b>	<b>10</b>		
<b>4</b>	a	3		
	b	3		
	c	4		
	<b>Total</b>	<b>10</b>		
<b>5</b>	a	8		
	b	1		
	c	1		
	<b>Total</b>	<b>10</b>		
<b>6</b>	a	3		
	b	2		
	c	3		
	d	1		
	e	1		
	<b>Total</b>	<b>10</b>		

Deputy of underground coal mines – DEP – May 2021

Question Number	Available mark	Mark	Marked by (full name)	Summary comments to justify, as necessary
<b>7</b>	a	2		
	b	4		
	c	2		
	d	2		
	<b>Total</b>	<b>10</b>		
<b>8</b>	a	8		
	b	2		
	<b>Total</b>	<b>10</b>		
<b>9</b>	a	8		
	b	2		
	<b>Total</b>	<b>10</b>		
<b>10</b>	a	8		
	b	2		
	<b>Total</b>	<b>10</b>		
<b>PAPER</b>	<b>TOTAL</b>	<b>100</b>		<i>Marks checked by:</i>



**(DEP)**

*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**

### **Deputy of underground coal mines**

#### **Coal mining practise & legislation**

Wednesday 19 May 2021  
10:00 am to 12:30 pm (150 mins)

### **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

**QUESTION 1**

**(10 marks)**

- a) List the signs of spontaneous combustion you would look for during a weekly inspection of roadways in an underground coal mine. (3 marks)

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- b) In an underground coal mine that has six main headings and is liable to spontaneous combustion, what type of ventilation would you expect? Circle the appropriate response. (2 marks)
- i. Dual returns
  - ii. Flanking

/2
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- c) From your answer in b), what are the advantages of your choice? (2 marks)

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- d) What are some of the standards associated with spontaneous combustion that you would expect to be in place in an underground mine liable to spontaneous combustion? (3 marks)

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**QUESTION 2**

**(10 marks)**

There have been several incidents in the last month where shuttle car cables have been damaged in the development panels at your mine.

The Development Superintendent has asked you to carry out an audit of the panel and recommend any improvements for the following:

a) To prevent incidents occurring.

(5 marks)

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b) To reduce the 'downtime' associated with changing the damaged cables. (5 marks)

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b) Give an approximate timeframe to rectify the problem.

(1 mark)

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**QUESTION 4**

**(10 marks)**

a) Explain the purpose of a brattice wing in the tailgate of a 'gassy' longwall. (3 marks)

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b) Explain a 'standard' for a tailgate brattice wing that you are familiar with. (3 marks)

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b) In the Work Health & Safety (Mines and petroleum sites) Regulation 2014 (WHS MPS Regs 2014), under what clause is an incident of CH<sub>4</sub> greater than 2% required to be notified to the regulator? Circle the appropriate response. (1 mark)

- iii. Clause 128
- iv. Clause 129
- v. Clause 179

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c) When must the Regulator be notified of this incident? Circle the appropriate response. (1 mark)

- i. immediately
- ii. as soon as reasonably practicable, no later than 24 hours
- iii. as soon as reasonably practicable, no later than 48 hours
- iv. as soon as reasonably practicable, no later than 7 days

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**QUESTION 6**

**(10 marks)**

a) The WHS MPS Regs 2021 Clause 39 refers to ensuring exposure standards for dust and diesel particulate matter not exceeded. (3 marks)

Fill in the appropriate response in the space provided.

The operator of a mine or petroleum site must, \_\_\_\_\_, minimise the exposure of persons at the mine or petroleum site to dust and diesel particulate matter and must ensure that no person at the mine or petroleum site is exposed to \_\_\_\_\_ time-weighted average atmospheric concentrations of airborne dust and diesel particulate matter that exceed -

- i. for respirable dust - \_\_\_\_\_ milligrams per cubic metre of air, or in the case of a coal mine, \_\_\_\_\_ milligrams per cubic metre of air, or
- ii. for inhalable dust - \_\_\_\_\_ milligrams per cubic metre of air, or
- iii. for diesel particulate matter - \_\_\_\_\_ milligram per cubic metre (measured as sub-micron elemental carbon).

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b) What is the name of the safe work standard referenced in this clause? (2 marks)

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c) Explain how to determine the ventilation quantity available at the last completed line of cut-throughs in a 4-heading development panel, with 3 intakes and 1 return. (3 marks)

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d) Using the ventilation quantity you established in the above question, how would you determine what the carbon monoxide (CO) make is for your panel is your hand-held detector was reading 6ppm CO? (1 mark)

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e) What actions would you take upon determining what the CO make is? (1 mark)

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**QUESTION 7**

**(10 marks)**

From the WHS MPS Regs 2014;

- a) Explain how an explosion proof piece of electrical equipment will prevent arcing within the enclosure from igniting flammable gas external to the enclosure. (2 marks)

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- b) Explain the definition of a hazardous zone. (4 marks)

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- c) Explain the definition of 'fire protected engine'. (2 marks)

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- a) In schedule 10, part 2 (10) explain what the Deputy statutory function is. (2 marks)

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b) Explain how you would test for recirculation with respect to the operation of the auxiliary fan. (2 marks)

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**QUESTION 10**

**(10 marks)**

a) Complete the following gas chart:

**(8 marks)**

Chemical					
Methane					
Carbon monoxide					
Carbon dioxide					
Oxygen					

b) What are the major constituents of air and what is their proportion, by volume of air?  
**(2 marks)**

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**END OF QUESTIONS**

**BLANK PAPER TO WRITE ANSWERS THAT YOU COULD NOT FIT INTO THE SPACE PROVIDED – INDICATE QUESTION NUMBER AT START OF ANSWER**

**END OF PAPER**