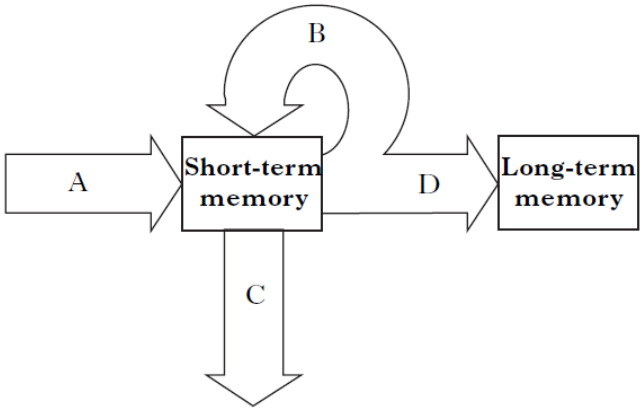
1. The diagram below illustrates the relationship between short and long-term memory.



Which arrow represents the process of rehearsal?

2. Which of the following best describes memory span?

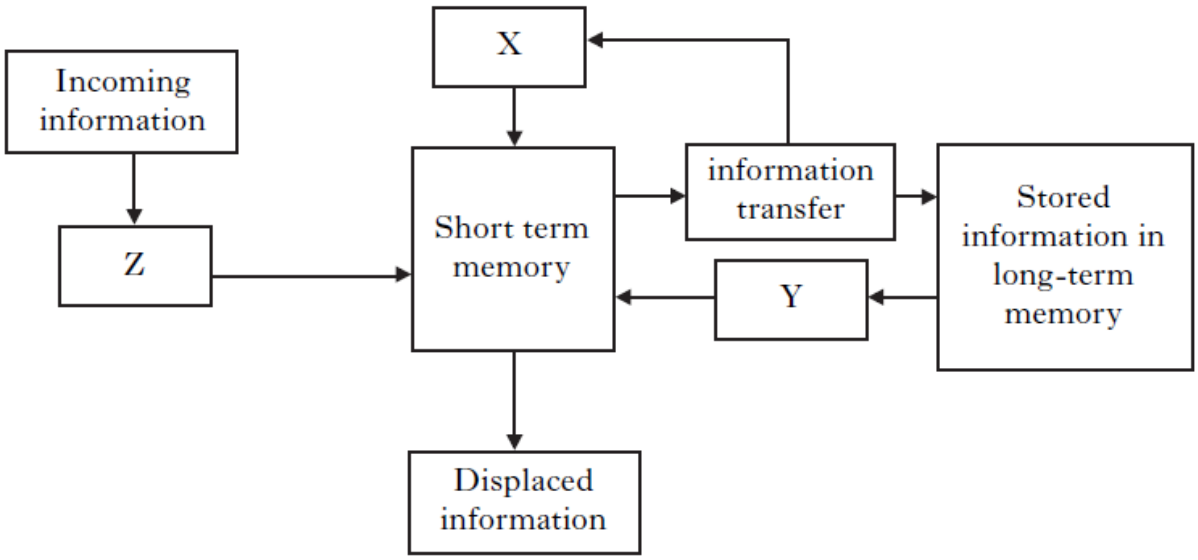
A The total memory capacity of the brain

B The time taken to learn a piece of information

C The storage capacity of the short-term memory

D The capacity to store information in long-term memory

3. The diagram below represents the passage of information through memory.



(*a*) (i) Identify processes X, Y and Z.

X _____

Y _____

Z _____ **2**

(ii) State **two** forms of information which can enter short term memory.

1 _____

2 _____ **1**

(iii) Describe how contextual cues help recall from long-term memory.

_____

_____

_____ **1**

(*b*) A student had to learn her SQA candidate number which contained 9 digits. She was advised to use chunking to help her memorise it.

Explain why the process of chunking would help her memorise this number.

_____

_____

_____ **1**

(*c*) (i) Patients with Alzheimer's disease find it difficult to form new memories. Which part of the brain is affected by Alzheimer's disease?

_____ **1**

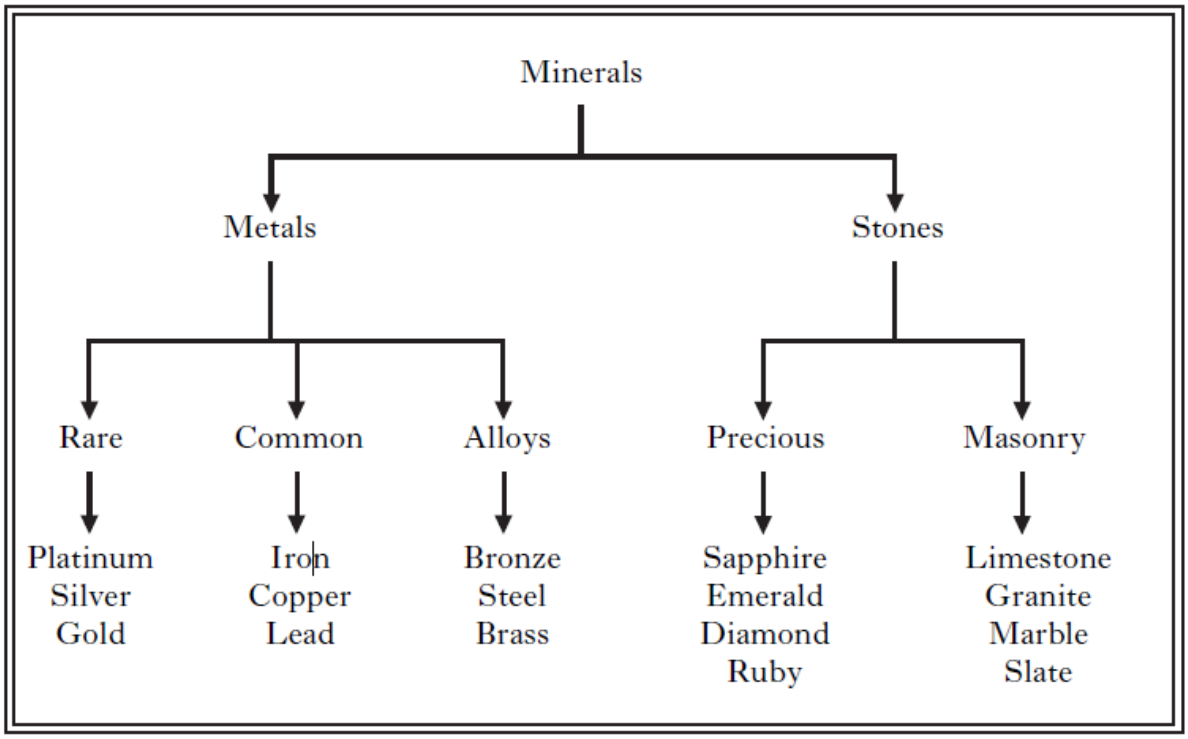
(ii) Name the receptor thought to be important in the process of memory storage.

_____ **1**

4.

An investigation was carried out into the effects of organisation on improving the recall of information.

Four students were each asked to look at a card containing 25 words organised into a branching diagram. The card is shown below.



The card was removed after three minutes and each student had to write down as many words as he or she could recall. A score out of 25 was recorded for each student and these were added together to give a total score out of 100 for the group. The procedure was repeated twice. Each time the students were given cards containing 25 different words also organised into branching diagrams. Another group of four students took part in the control for this investigation. The words on their cards were not organised.

The results are shown in the table below.

	Total number of words recalled (out of 100)			
Student Group	1st card	2nd card	3rd card	average
Experimental	75	78	72	
Control	53	57	55	

(*a*) Complete the table by calculating the average number of words recalled by each student group.

Space for calculation

1

(*b*) In what way would the content of the control cards be

similar to the experimental cards? _____

_____

different from the experimental cards? _____

_____ **1**

(*c*) Suggest **two** variables, not already mentioned in the description of this investigation, which would have to be kept constant to ensure that a valid comparison could be made between the two groups.

1 _____

2 _____ **2**

(*d*) State a conclusion that can be drawn from the results.

_____

_____ **1**

(*e*) How could the reliability of the results of this investigation be improved?

_____

_____ **1**

(*f*) At the start of the investigation the students were told that the person in each group who recalled most words would be given a prize.

Why did the design of this investigation include a prize?

_____

_____ **1**

(*g*) In a further investigation into recall, students were given the same card to memorise on three successive occasions.

Predict what would happen to the number of words recalled on each successive attempt. Explain your prediction.

Prediction _____

Explanation _____ **1**

5.

An investigation was carried out into the effect that the meaning of words has on the ability to recall them from short and long-term memory.

Two groups of people were each shown lists of five words for 30 seconds.

Group 1 was shown words with related meanings while group 2 was shown words with unrelated meanings.

List of words with related meanings – *large, big, great, huge, wide.*
List of words with unrelated meanings – *late, cheap, rare, bright, rough.*

Immediately after the 30 seconds, the people in both groups were asked to write down, in the correct order, the words that they had been shown.

Everyone was then asked to read a book for one hour and told that they would be asked questions about it afterwards.

Instead, after the hour had passed, everyone was again asked to write down, in the correct order, the words that they had been shown in their original list.

The results of the investigation are shown in the table below.

Group	*Meaning of words shown*	*Correct responses immediately after reading the words (%)*	*Correct responses after reading the book for one hour (%)*
1	related	96	54
2	unrelated	96	78

(*a*) List **two** ways in which the investigators could minimise variation between the two groups of people.

1 _____

2 _____ **1**

(*b*) What aspect of memory explains the high percentage of correct responses immediately after reading the words?

_____

_____ **1**

(*c*) Suggest why the groups were asked to read a book during the investigation.

_____

_____ **1**

(*d*) State **two** conclusions that can be drawn from the results of this investigation.

1 _____

_____

2 _____

_____ **2**

6. The serial position effect shows that words in the middle of a list are usually poorly recalled because many of these words

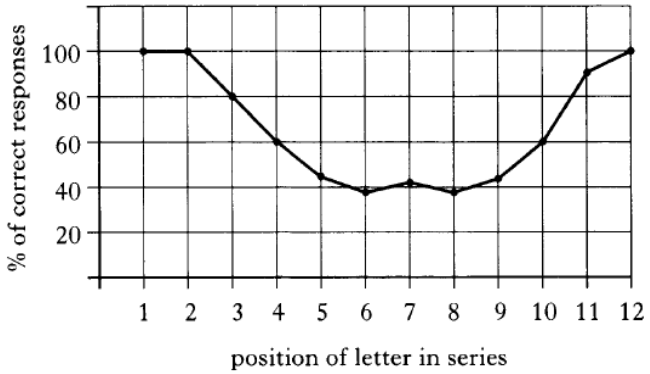
A have been displaced from short-term memory

B have not been encoded into short-term memory

C have been transferred into long-term memory

D have been stored in long-term memory.

7. Students were asked to recall twelve letters of the alphabet in any order, after hearing the list of letters read slowly once over. An analysis of their performance is shown in the graph below.



On how many occasions was a letter recalled by more than half of the students?

A 5

B 7

C 9

D 10

8. Give an account of perception, the process by which the brain makes sense of incoming information. **8**

9. Give an account of memory under the following headings:

(i) short-term memory (6)

(ii) methods of transfer to long-term memory (3) **8**