



[PHY2011 S1 2024](#) / Movement control - Cerebral Cortex - extended questions 4

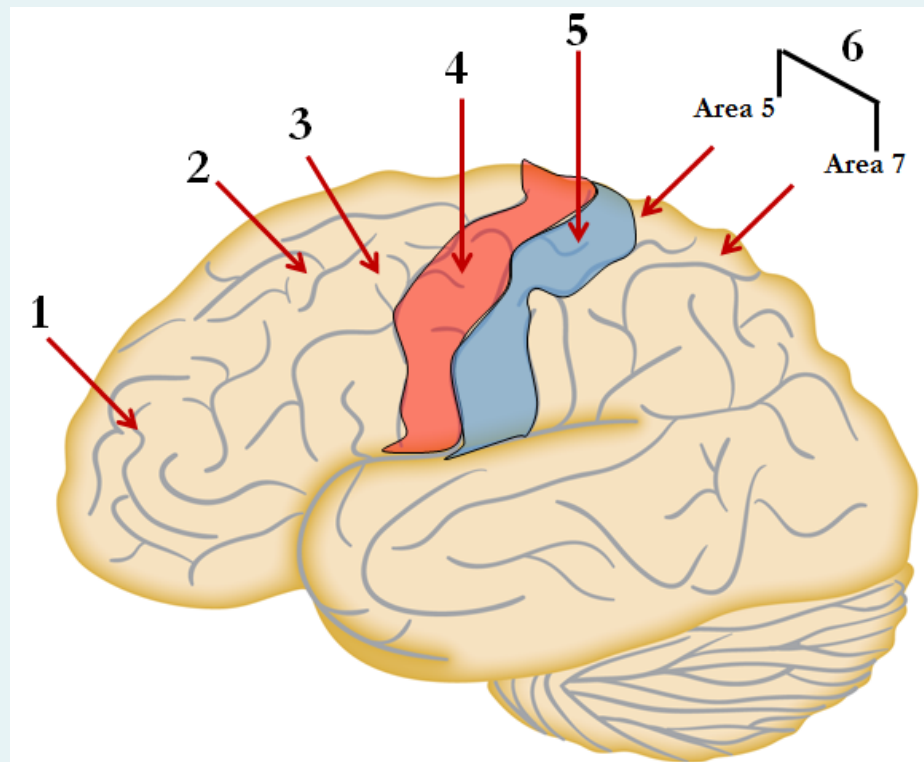
<b>Started on</b>	Monday, 17 June 2024, 8:26 AM
<b>State</b>	Finished
<b>Completed on</b>	Monday, 17 June 2024, 8:31 AM
<b>Time taken</b>	4 mins 31 secs
<b>Marks</b>	21.00/21.00
<b>Grade</b>	<b>10.00</b> out of 10.00 ( <b>100%</b> )

**Question 1**

Correct

Mark 10.00 out of 10.00

The figure below shows the most important cortical sites for the control of fine, intentional movement. For the statements below the figure, for each empty box, select the correct answer from the drop-down box.



When we form the desire to do something complex, like writing or juggling, the intention is generated in the

prefrontal cortex



which is numbered

1



above.

This intention triggers the the motor plan, sequences of muscle contractions for that complex movement, and the motor plan is located in the

supplementary motor area



, numbered

2



in the figure.

The motor plan can be also triggered by external visual and tactile inputs which are mediated through the

posterior parietal cortex



, which is numbered

6



in the figure.

Ultimately the motor plan has to lead to activation of the lateral corticospinal tract (LCST) which originates mainly in the Betz cells Layer V in

motor cortex



, numbered

4



. There are also inputs to the

LCST from

premotor cortex



, numbered

3

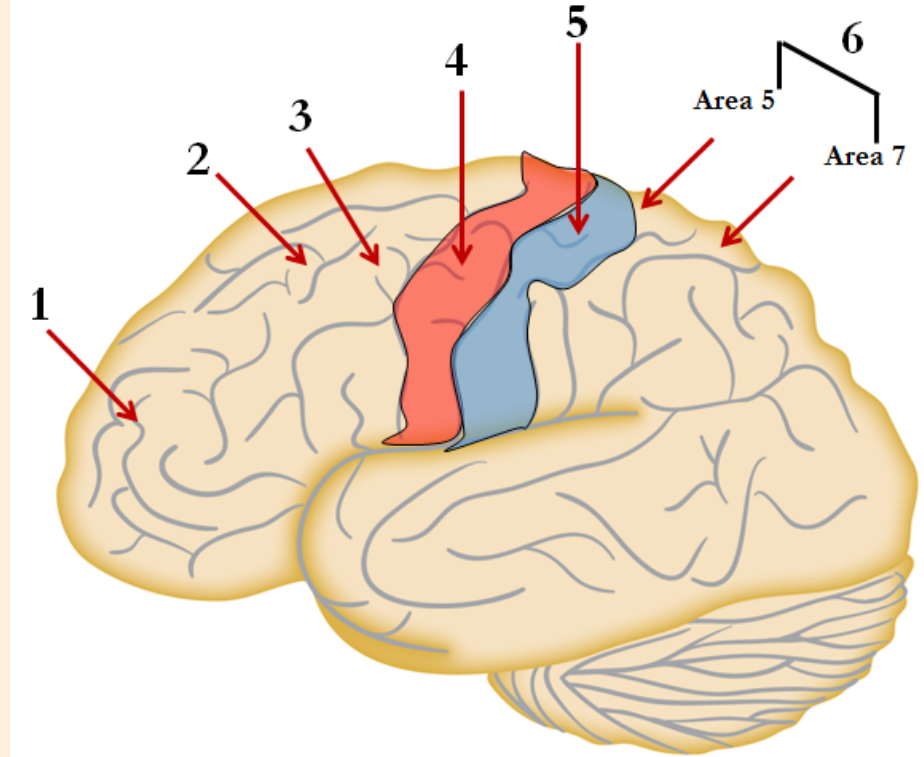


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Your answer is correct.

The correct answer is:

The figure below shows the most important cortical sites for the control of fine, intentional movement. For the statements below the figure, for each empty box, select the correct answer from the drop-down box.



When we form the desire to do something complex, like writing or juggling, the intention is generated in the [prefrontal cortex] which is numbered [1] above.

This intention triggers the the motor plan, sequences of muscle contractions for that complex movement, and the motor plan is located in the [supplementary motor area], numbered [2] in the figure.

The motor plan can be also triggered by external visual and tactile inputs which are mediated through the [posterior parietal cortex], which is numbered [6] in the figure.

Ultimately the motor plan has to lead to activation of the lateral corticospinal tract (LCST) which originates mainly in the Betz cells Layer V in [motor cortex], numbered [4]. There are also inputs to the LCST from [premotor cortex], numbered [3].

**Question 2**

Correct

Mark 6.00 out of  
6.00**For each empty box, select the correct answer from the drop-down list beside the box.**

Supplementary motor area (SMA) neurons contain the ordering of the sequences of muscle contractions for complex movement, called the  ✓.

This can be triggered by an intent or desire to do some specific thing, and this triggers input from the  ✓ to SMA.

It can also be triggered by or in response to external visual and tactile inputs from the  ✓ cortex, which lies just caudal to somatosensory cortex.

The SMA output is then fed to the collection of sub-cortical nuclei called the  ✓, which select actions and initiate movements.

The output of this last structure goes via thalamus to the  ✓ cortex that sends outputs in the newest evolutionary motor pathway, the  ✓ tract.

Your answer is correct.

The correct answer is:

**For each empty box, select the correct answer from the drop-down list beside the box.**

Supplementary motor area (SMA) neurons contain the ordering of the sequences of muscle contractions for complex movement, called the [motor plan].

This can be triggered by an intent or desire to do some specific thing, and this triggers input from the [pre-frontal cortex] to SMA.

It can also be triggered by or in response to external visual and tactile inputs from the [posterior parietal] cortex, which lies just caudal to somatosensory cortex.

The SMA output is then fed to the collection of sub-cortical nuclei called the [basal ganglia], which select actions

and initiate movements.

The output of this last structure goes via thalamus to the [motor] cortex that sends outputs in the newest evolutionary motor pathway, the [corticospinal] tract.

**Question 3**

Correct

Mark 5.00 out of  
5.00**For each empty box, select the correct answer from the drop-down list beside the box.**

Visual input is not critical in normal subjects for simple tasks like  ✓ but is necessary for fine controlled volitional movements.

Visual input can influence such movements through the  ✓, which lies just caudal to somatosensory cortex.

This cortical area sends its inputs to modulate the neurons of Supplementary motor area (SMA) neurons which contain the ordering of the sequences of muscle contractions for complex movement, called the

 ✓ .

This motor plan can also be triggered by an intent or desire to do some specific thing, generated in

 ✓ cortex.

The SMA output is then fed to the collection of sub-cortical nuclei called the  ✓, which select actions and initiate movements.

Your answer is correct.

The correct answer is:

**For each empty box, select the correct answer from the drop-down list beside the box.**

Visual input is not critical in normal subjects for simple tasks like [balance] but is necessary for fine controlled volitional movements.

Visual input can influence such movements through the [posterior parietal cortex], which lies just caudal to somatosensory cortex.

This cortical area sends its inputs to modulate the neurons of Supplementary motor area (SMA) neurons which contain the ordering of the sequences of muscle contractions for complex movement, called the [motor plan].

This motor plan can also be triggered by an intent or desire to do some specific thing, generated in [prefrontal] cortex.

The SMA output is then fed to the collection of sub-cortical nuclei called the [basal ganglia], which select actions and initiate movements.