AQA, OCR, Edexcel

A Level

A Level Biology

The Nervous System Answers

Name:

M M E

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Total Marks: /34

The Nervous System

Answer	Marks
1. a) i) Receptor cells – detect stimuli Effector cells respond to the stimuli	2 marks
ii) A – Sensory neurone B – Relay neurone C – Motor neurones	3 marks
iii) -Neurotransmitters - Diffuse	1 mark
iv) – controls the unconscious activities of the body -speeds up the nervous system via the sympathetic nerves - slows down the nervous system via the parasympathetic nervous system	3 marks
b) i) (fovea) retina	1 mark
ii) Optic nerve	1 mark
c) i) Rods can generate action potentials in dim light -Many rod cells join to one bipolar neurone - Retinal convergence/ retinal summation - Cone cells need much brighter light to generate an action potential -Only one cone cell is connected to each bipolar neurone	4 marks

ii) – ability to distinguish between points that are close together -Rods have low visual acuity - Cones have high visual acuity because each cell is connected to one neurone	3 marks
2. a) i) a. Thermoreceptors b. Photoreceptors c. Mechanoreceptors/ Pacinian Corpuscle d. Chemoreceptors	4 marks
b) i) – charge is different across the membrane (-65mv/-70mv) - Sodium/potassium pump -uses ATP - pumps 3 Na^+ out for 2 K^+ in	3 marks
ii) – Membrane becomes more permeable - ions move across the membrane -Membrane depolarised	2 marks
iii) Generator potential	1 mark
iv) – the minimum size of stimulus needed to transmit a signal	1 mark
c) i) Pacinian Corpuscle	1 mark

ii) – detects changes in mechanical pressure - pressure deforms the stretch mediated sodium channels - the movement of sodium ions creates a generator potential -- - which causes an actual potential	4 marks