

The Human Nervous System

Mark Scheme 1

Level	GCSE (9-1)
Subject	Combined Science – Trilogy - Biology
Exam Board	AQA
Topic	4.5 Homeostasis and Response
Sub-Topic	The Human Nervous System
Difficulty Level	Bronze Level
Booklet	Mark Scheme 1

Time Allowed: 59 minutes

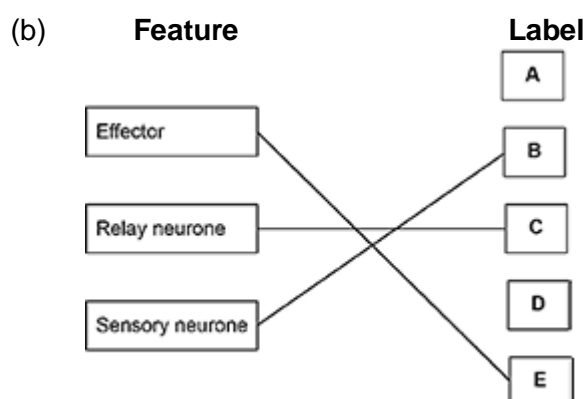
Score: / 58

Percentage: /100

Grade Boundaries:

M1.(a) Reflex action

1



extra lines from the left negate the mark

3

(c) dependent

1

(d) 17.0

allow answers in range 17.0–17.3 cm

1

(e) 0.5 cm

1

(f) 23.5

1

does not fit the pattern **or** at least 5 cm higher than the other values

1

(g) The results are for the left and right hands of different people

1
[10]

M2.(a) (i) stimulus

1

(ii) cytoplasm

1

(b) (i) ear(s)

in this order only

1

eye(s)

accept retina

1

skin

ignore extra detail

1

(ii) A muscle

1

[6]

M3.(a) (i) sensory neurone

1

a synapse

1

(ii) contract

1

(iii) not connected to brain / coordinated only by spinal cord

1

(iv) automatic / rapid (response)

allow no thinking / faster / less time

1

protects body from danger / from damage / from burning

1

(b) (i) caffeine decreases reaction time

accept caffeine speeds up / quicker reactions

1

(ii) the two sets of results overlap (considerably)

allow use of appropriate numbers – eg 5 of the 'after' results overlap with the 'before' results

allow 'wide spread of results'

allow 'it was just one person' or 'it was a small sample'

accept use of one pair of results only – if meaning is clear

accept use of one pair of overlapping results

1

(iii) any **two** sensible suggestions: eg

- more repetitions
- perform investigation on several other people
- use other (measured) amounts of coffee
- use different / more time intervals
- other suggested measure of reaction time – eg computer-generated light flash + time measurement
- use pure caffeine or caffeine tablets

2

[10]

M4.(a) sensory neurone

1

(b) (i) synapse

1

(ii) a chemical

1

(c) (What happens to the muscle)

mark both parts of the question together

any **one** from:

- contraction / contracts
ignore relaxation / relaxes / tenses

1

- gets shorter

(How this helps the body)

idea of protection for body (from damage / pain)

eg moves finger / arm away (from pin / stimulus / source of pain)

1

[5]

M5.(a) A sperm

1

B egg

1

C fertilised egg

1

D embryo

1

(b) insert into mother

ignore fertilise / check fertilisation / check viability

1

womb / uterus

1

(c) (i) one quarter

1

(ii) no / little chance of success over 42

1

reference to table of only two women in the age bracket 40-42 years became pregnant

the statement 'only 2 out of 53 40-42 year old women became pregnant / had babies' gains 2 marks

1

(iii) so fewer twins / multiple births or multiple births more dangerous

1

[10]

M6. (a) a stimulus

1

(b) (i) **A**

1

(ii) **C**

either order

1

D

1

(iii) E

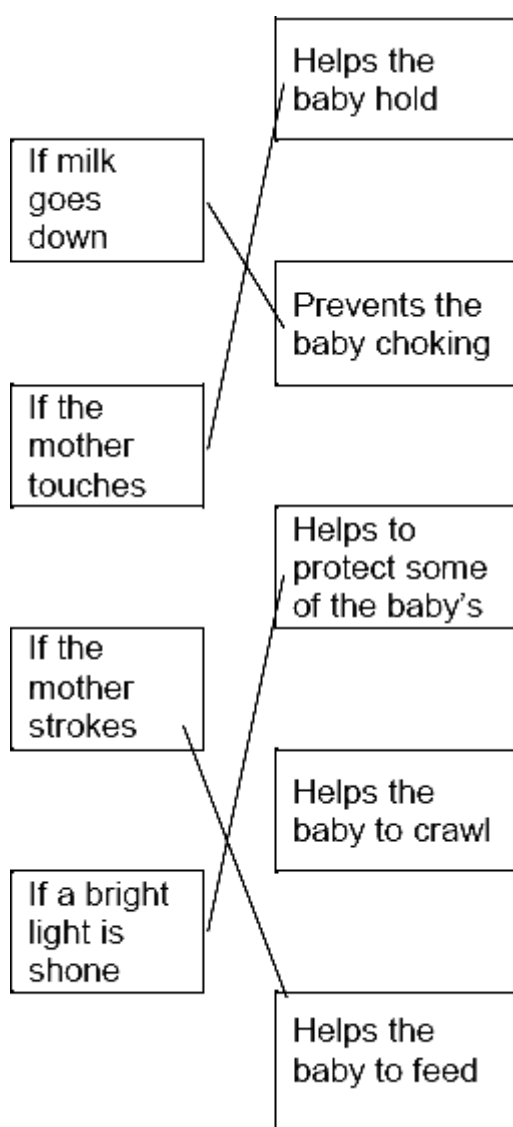
1

(c) brain

allow spinal cord / CNS / central nervous system
do **not** allow spine

1

[6]



M7. (a)

all four correct = 4 marks

three correct = 3 marks

two correct = 2 marks

one correct = 1 mark

extra line from a statement cancels the mark

4

(b) glands

1

muscles

1 mark for each correct tick

each extra box ticked cancels 1 mark

1

[6]

M8. (a) eye / sight / eyesight
either order

1

ear / hearing
ignore light

1

(b) ear

1

(c) (i) reflex

1

(ii) neurons

1

[5]