

Mark Scheme (Results)

Summer 2013

International GCSE
Human Biology (4HB0) Paper 02

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Publications Code UG037206

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| Question number | Answer | Accept | Reject | Marks |
|-----------------|---|--------|---------------------------|-----------|
| 1 (a) | A = ovary B = uterus/womb; C = vagina; | | wall cervix | 3 |
| (b) | no ovum/egg present; released in middle of cycle/not yet released/released later/ovum still in ovary; endometrium/womb <u>lining</u> thinner; (during menstruation/period) removed/ breaks down/shed; | | deteriorated | 4 |
| (c) | fertilise/penetrate/fuse with ovum; may die; swims up uterus/fallopian tube /oviduct/swim to ovum/pass out of vagina/finds egg already fertilised; stopped by contraceptive device; | | | 3 Max |
| (d) (i) | infertile/sterile; obstruction prevents sperm and ovum meeting/ovum cannot enter fallopian tube; | | | 2 |
| (ii) | use condom/avoid sexual intercourse; prevents mixing of body fluids; which transfer disease/prevents bacteria from entering; | | protected sex safe sex | 2 max |
| | | | Total | 14 |

| Question number | Answer | Accept | Reject | Marks |
|-----------------|--|--------|------------------|-------|
| 2 (a) | Any three from: water bath; (stop)clock/timer/watch; test tube holder/rack/tongs; safety goggles; pipette; thermometer; measuring cylinder; balance; | | Clamp/Stand tube | 3 max |
| (b) (i) | volume/mass/amount of egg white; | | how much | 1 |
| (ii) | different volume will take longer to react; | R.A. | | 1 |

| Question number | Answer | Accept | Reject | Marks | | | | | | | | | | | | | | | | | | | | | |
|-----------------|--|-----------------------|---------------|-----------|----------|---------------------------------|-----------------------|----------|----------------------|--------|----------|-----------------------|-------------------|----------|------------------|-------------------|----------|-------------------|-------------------|----------|----------------------|-------------------|--|--|---|
| 2 (c) | <table border="1"> <thead> <tr> <th>Test Tube</th> <th>Treatment</th> <th>Result</th> </tr> </thead> <tbody> <tr> <td>A</td> <td><i>nothing added not boiled</i></td> <td><i>slightly clear</i></td> </tr> <tr> <td>B</td> <td>HCl added not boiled</td> <td>clear;</td> </tr> <tr> <td>C</td> <td>NaOH added not boiled</td> <td>cloudy/no change;</td> </tr> <tr> <td>D</td> <td>HCl added boiled</td> <td>cloudy/no change;</td> </tr> <tr> <td>E</td> <td>NaOH added boiled</td> <td>cloudy/no change;</td> </tr> <tr> <td>F</td> <td>nothing added boiled</td> <td>cloudy/no change;</td> </tr> </tbody> </table> | Test Tube | Treatment | Result | A | <i>nothing added not boiled</i> | <i>slightly clear</i> | B | HCl added not boiled | clear; | C | NaOH added not boiled | cloudy/no change; | D | HCl added boiled | cloudy/no change; | E | NaOH added boiled | cloudy/no change; | F | nothing added boiled | cloudy/no change; | | | 5 |
| Test Tube | Treatment | Result | | | | | | | | | | | | | | | | | | | | | | | |
| A | <i>nothing added not boiled</i> | <i>slightly clear</i> | | | | | | | | | | | | | | | | | | | | | | | |
| B | HCl added not boiled | clear; | | | | | | | | | | | | | | | | | | | | | | | |
| C | NaOH added not boiled | cloudy/no change; | | | | | | | | | | | | | | | | | | | | | | | |
| D | HCl added boiled | cloudy/no change; | | | | | | | | | | | | | | | | | | | | | | | |
| E | NaOH added boiled | cloudy/no change; | | | | | | | | | | | | | | | | | | | | | | | |
| F | nothing added boiled | cloudy/no change; | | | | | | | | | | | | | | | | | | | | | | | |
| (d) | <p>destroyed/denatured by heat;</p> <p>more active/works better/low pH in acid conditions/less active in alkaline conditions/high pH;</p> <p>digests protein/egg white;</p> | | kills or dies | 2 max | | | | | | | | | | | | | | | | | | | | | |
| | | | Total | 12 | | | | | | | | | | | | | | | | | | | | | |

| Question number | Answer | Accept | Reject | Marks |
|-----------------|---|----------------------------|---|----------|
| 3 | use of drugs/medication; kills worms in body; kill snails; by use of predators/biological control; eg crayfish; or chemicals/pesticides; improve sanitation; drain swamps/ponds/lakes; prevents faeces/urine entering water; prevents worms eggs from infecting other snails; health education/warn of dangers of entering water/do not bathe; cover up skin if entering water/do not walk barefoot; | named predators if correct | antibiotics Insecticides disinfectant antiseptic | 8 |
| | | | Total | 8 |

| Question number | Answer | Accept | Reject | Marks |
|-----------------|--|---|----------------------------|----------|
| 4 (a) | sugar solution raised; distilled water lower; | | | 2 |
| (b) | water molecules pass through membrane/into sugar solution by <u>osmosis</u> ; increased volume of sugar solution; decreased volume of distilled water; | | makes solution more dilute | 2 max |
| (c) | sugar molecules unable/too big to pass through membrane; allows movement of water between cells; ensures conc. of contents remains constant; | Appropriate examples e.g. kidney reabsorption | | 2 |
| | | | Total | 6 |

| Question number | Answer | Accept | Reject | Marks |
|-----------------|---|---|---------------------------|-----------|
| 6 (a) (i) | hinge; | | | 1 |
| (ii) | ball and socket; | | ball joint pivot joint | 1 |
| (b) | A/biceps contracts; <u>forearm</u> moves/pulls up/raises; B/triceps stretched; B/triceps contracts; <u>forearm</u> moves/pulls down/straightens; antagonistic/description; | <u>forearm</u> flexes <u>forearm</u> extends | | 4 max |
| (c) | no/reduced cartilage; normally covers end of bone; smooth; reduces friction; shock absorber/cushions; bones will rub/grind together; | | any reference to fluid | 4 max |
| | | | Total | 10 |
| | | | Total For Paper | 60 |

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