CAMBRIDGE
International Education

Cambridge IGCSE™

AGRICULTURE **0600/12**

Paper 1 Theory **October/November 2024**

MARK SCHEME

Maximum Mark: 100

Published

This mark scheme is published as an aid to teachers and candidates, to indicate the requirements of the examination. It shows the basis on which Examiners were instructed to award marks. It does not indicate the details of the discussions that took place at an Examiners' meeting before marking began, which would have considered the acceptability of alternative answers.

Mark schemes should be read in conjunction with the question paper and the Principal Examiner Report for Teachers.

Cambridge International will not enter into discussions about these mark schemes.

Cambridge International is publishing the mark schemes for the October/November 2024 series for most Cambridge IGCSE, Cambridge International A and AS Level components, and some Cambridge O Level components.

PUBLISHED

Generic Marking Principles

These general marking principles must be applied by all examiners when marking candidate answers. They should be applied alongside the specific content of the mark scheme or generic level descriptions for a question. Each question paper and mark scheme will also comply with these marking principles.

GENERIC MARKING PRINCIPLE 1:

Marks must be awarded in line with:

- the specific content of the mark scheme or the generic level descriptors for the question
- the specific skills defined in the mark scheme or in the generic level descriptors for the question
- the standard of response required by a candidate as exemplified by the standardisation scripts.

GENERIC MARKING PRINCIPLE 2:

Marks awarded are always **whole marks** (not half marks, or other fractions).

GENERIC MARKING PRINCIPLE 3:

Marks must be awarded **positively**:

- marks are awarded for correct/valid answers, as defined in the mark scheme. However, credit is given for valid answers which go beyond the scope of the syllabus and mark scheme, referring to your Team Leader as appropriate
- marks are awarded when candidates clearly demonstrate what they know and can do
- marks are not deducted for errors
- marks are not deducted for omissions
- answers should only be judged on the quality of spelling, punctuation and grammar when these features are specifically assessed by the question as indicated by the mark scheme. The meaning, however, should be unambiguous.

GENERIC MARKING PRINCIPLE 4:

Rules must be applied consistently, e.g. in situations where candidates have not followed instructions or in the application of generic level descriptors.

GENERIC MARKING PRINCIPLE 5: Marks should be awarded using the full range of marks defined in the mark scheme for the question (however; the use of the full mark range may be limited according to the quality of the candidate responses seen).
GENERIC MARKING PRINCIPLE 6: Marks awarded are based solely on the requirements as defined in the mark scheme. Marks should not be awarded with grade thresholds or grade descriptors in mind.

Science-Specific Marking Principles

1	Examiners should consider the context and scientific use of any keywords when awarding marks. Although keywords may be present, marks should not be awarded if the keywords are used incorrectly.
2	The examiner should not choose between contradictory statements given in the same question part, and credit should not be awarded for any correct statement that is contradicted within the same question part. Wrong science that is irrelevant to the question should be ignored.
3	Although spellings do not have to be correct, spellings of syllabus terms must allow for clear and unambiguous separation from other syllabus terms with which they may be confused (e.g. ethane / ethene, glucagon / glycogen, refraction / reflection).
4	The error carried forward (ecf) principle should be applied, where appropriate. If an incorrect answer is subsequently used in a scientifically correct way, the candidate should be awarded these subsequent marking points. Further guidance will be included in the mark scheme where necessary and any exceptions to this general principle will be noted.
5	‘List rule’ guidance For questions that require ***n*** responses (e.g. State **two** reasons …): • The response should be read as continuous prose, even when numbered answer spaces are provided. • Any response marked *ignore* in the mark scheme should not count towards ***n***. • Incorrect responses should not be awarded credit but will still count towards ***n***. • Read the entire response to check for any responses that contradict those that would otherwise be credited. Credit should **not** be awarded for any responses that are contradicted within the rest of the response. Where two responses contradict one another, this should be treated as a single incorrect response. • Non-contradictory responses after the first ***n*** responses may be ignored even if they include incorrect science.

6 Calculation specific guidance

Correct answers to calculations should be given full credit even if there is no working or incorrect working, **unless** the question states 'show your working'.

For questions in which the number of significant figures required is not stated, credit should be awarded for correct answers when rounded by the examiner to the number of significant figures given in the mark scheme. This may not apply to measured values.

For answers given in standard form (e.g. $a \times 10^n$) in which the convention of restricting the value of the coefficient (a) to a value between 1 and 10 is not followed, credit may still be awarded if the answer can be converted to the answer given in the mark scheme.

Unless a separate mark is given for a unit, a missing or incorrect unit will normally mean that the final calculation mark is not awarded. Exceptions to this general principle will be noted in the mark scheme.

7 Guidance for chemical equations

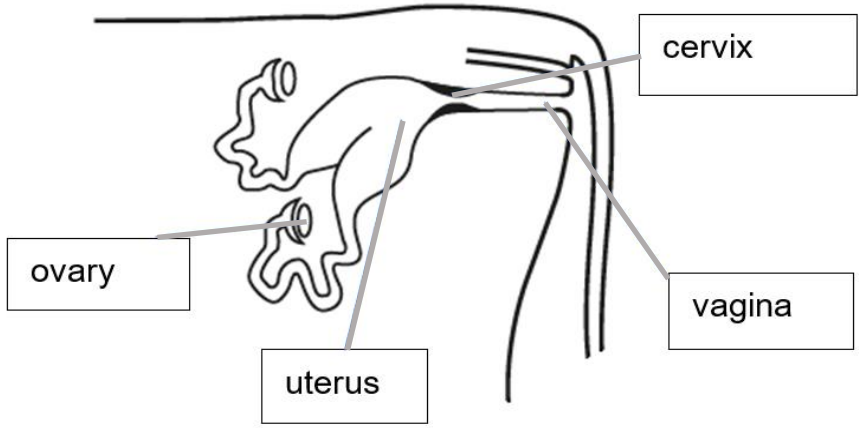
Multiples / fractions of coefficients used in chemical equations are acceptable unless stated otherwise in the mark scheme.

State symbols given in an equation should be ignored unless asked for in the question or stated otherwise in the mark scheme.

Question	Answer	Marks
1(a)	*2 marks available for possible benefits and 2 marks available for possible problems.* *benefits:* cost saving, e.g. no need to buy expensive chemical pesticides / machinery; long lasting; may be highly specific / little effect on non-target species; one application may give long-term effect / less need for repeated application; no chemical environmental pollution / no harmful chemical residue build-up; no development of chemical resistance; free source of food for control agent; free source of manure / (organic) fertiliser for farm; control agent may provide an additional source of income; sustainable / environmentally friendly; *problems:* increased set up / purchase / management costs; not available for all pests; some treatments not effective at field scale; may need repeated application; predator may contaminate crop with faeces / crop may smell / be unsaleable / become unfit for human consumption; predator could become a pest themselves / feed on / damage the crop; predator could step on the crop / break the crop / reduce crop yield; predator might not kill all the pests / reduce pest numbers slowly / crop damage continues; control agent may run out of pests to eat / die;	**4**

Question	Answer	Marks
1(b)	add manure; add organic matter / mulch; add (compound) fertiliser / example of compound fertiliser / improve soil fertility; use genetically modified (GM) variety; drainage; irrigation; time of planting; time of harvesting; shelter / shade; increase temperature; growing indoors / growing in controlled conditions; increasing (the atmospheric concentration of) carbon dioxide; seed rate; choice of field / soil type, e.g. sheltered / heavier land; disease control / removal of infected plants / spraying to minimise disease; improve soil structure; crop rotation; use cover crop / maintain vegetation; *Accept other valid suggestions.*	**3**
1(c)	sprayed / applied in locations where the pest is present / on the pest, so the pest can be affected; the pesticide can be absorbed through the cuticle / skin, so enters the pest's body; pesticide enters the pest's body, so the pest is exposed to the toxin / poison; toxin circulates throughout the pest's tissues, so cells / organs are damaged / destroyed; kills the pest / pest dies; *Accept other valid explanations.*	**3**

Question	Answer	Marks
2(a)	*3 marks available for steps in correct order.* identify best individuals / individuals with desired trait; cross these individuals (only); (obtain) offspring; choose offspring with the desired characteristics / breed these together / discard susceptible offspring / do not use for breeding; repeat this process / breed for a number of generations; until the desired characteristic breeds 'true' / consistent;	**3**
2(b)	*Relevant characteristic for 1 mark. Relevant explanation of this characteristic for second mark, for example:* disease / pest resistance; reduces pesticide input cost / reduced loss to disease; shorter stalk (cereal); reduced lodging risk for dwarf varieties / reduced fertiliser input; reduced fertiliser requirement; increased profitability; increased shelf-life; product on sale for longer / higher overall sales; hardiness / weather tolerance; crop can be grown in harsh / different climates; appearance; (harvested) crop is in high demand / popular in the market; seasons the crop can grow in / seasonality; market continuity / able to supply at different times; *Accept other valid characteristics and explanations.*	**2**

Question	Answer	Marks
3(a)	*1 mark for each correctly located and labelled reproductive organ.* cervix; ovary; uterus; vagina; For example:  	**4**
3(b)(i)	beyond / at the cervix / in the uterus;	**1**
3(b)(ii)	absence of male animal means some females do not come into season / oestrus could be missed / sperm damaged in storage / transport / sperm too old / not viable / not motile / insemination at the incorrect time / not at the desired mating time / may not be able to obtain the desired semen / high-quality semen may not be available;	**1**

Question	Answer	Marks
3(c)	*1 mark for a correct change. 1 mark for an appropriate explanation of the change, for example:* food / nutrient requirement increases (later) in pregnancy; to feed the growing foetus / due to the increase in mass of the pregnant female; higher quality / more nutrient-rich food needed; amount of feed the animal wants to eat is less / food intake is lower / feeding pattern may change to eating less food more often / appetite reduced as the foetus grows; higher protein feed is needed; as the foetus grows (and develops) more protein is needed for muscle development / to prepare for colostrum / milk production; higher energy feed is needed; to prepare for colostrum / milk production / to sustain body condition of mother; specific mineral needed, e.g. calcium; to prepare for colostrum / milk production / for the development of strong bones / for healthy growth; *Allow specific animal examples.*	**2**

Question	Answer	Marks
4(a)	*allele:* is an alternative version of a gene; *recessive:* allele only expressed in the absence of a dominant allele / expressed when the recessive alleles are in homozygous condition / two identical copies of the recessive allele must be present;	**2**

Question	Answer	Marks
4(b)(i)	*genotypes of parents:* Dd x Dd / Dd Dd; *offspring genotypes (and phenotypes):* dd (with defect) : Dd Dd DD (without defect); *expected ratio:* 1:3;	**3**
4(b)(ii)	cull animals with the defect; do not allow animals with the defect to breed / selective breeding; import defect-free replacement stock; genetic modification (to remove the defect);	**2**

Question	Answer	Marks
5(a)(i)	a hard (usually clay-rich) layer / zone**;** impermeable (layer); just below the ground surface; particles are ‘cemented’ together; silica / iron oxide / calcium carbonate / precipitated;	**2**
5(a)(ii)	repeated use of large / heavy machinery / increased loads on soil / high ground pressure; overwatering / incorrect irrigation / flooding; fertiliser misuse; increased / repeated ploughing / overworking soil; (repeated) ploughing at the same depth; deep ploughing; soil worked when wet;	**2**

Question	Answer	Marks
5(a)(iii)	prevents water draining / passing through soil to lower levels; water accumulates above the pan / soil becomes waterlogged; aeration is poor / anaerobic conditions; plants can die; root growth is restricted / shallow / roots cannot break through; root respiration restricted / poor; topsoil is liable to erosion / desertification; minerals / soil nutrients cannot reach roots / be taken up;	**2**
5(b)	(wide / low impact tyres, so) large area / reduced pressure / force per area of tyre;	**1**

Question	Answer	Marks
6(a)(i)	*1 mark for a correct example of each type of pest. Accept other correct pest examples.* *biting and chewing:* grasshopper / locust / termite / leaf miner / beetle; *boring pest:* weevil / stalk borer / American bollworm; *piercing and sucking pest:* aphid / Bagrada bug / mealy bug / scale insect;	**3**

Question	Answer	Marks
6(a)(ii)	*1 mark available for each correct, different relevant example of the damage caused by each type of pest.* *biting and chewing pest damage:* plant tissues are eaten / leave serrated / jagged edges; plant destroyed / plant dies; weaken plant / plant falls down / plants lodge; plant tissue damaged / stem holes are made; leaves removed / holes in leaf / reduced (leaf area for) photosynthesis; reduced growth rate / yield; water is lost from the plant / wilting; transfer of pathogens / disease from one plant to another; *boring pest damage:* destroy harvested crop in storage; plant destroyed / plant dies; weaken plant / plant falls down / plants lodge; plant tissue damaged / stem holes are made; leaves removed / holes in leaf / reduced (leaf area for) photosynthesis; reduced growth rate / yield; water / sap-bearing tissue destroyed / loss of sap / water from the plant / wilting; site for entry of pathogens / diseases / pests; *piercing and sucking pest damage:* plant dies; weaken plant / plant falls down / plants lodge; plant tissue damaged / holes are made, (e.g. in xylem / phloem / vascular bundle); reduced photosynthesis; reduced growth rate / yield; water / sap is lost from the plant / wilting; transfer of disease / pathogens from one plant to another;	**3**

Question	Answer	Marks
6(b)	*1 mark for a specific example of biological control. 2 additional marks are available for explanation, for example:* example: aphid / ladybird; natural enemy / predator; which feeds on / destroys / kills pest; reduces pest numbers / prevents from laying eggs; example: use of sterile males; mating still takes place; mating / breeding is unsuccessful; pest numbers reduce; example: pheromone traps; scent of a female / male; attract pest / trap pest; kill pest; example: use of bacteria / virus / nematodes / parasite; pathogen / make pest sick; enter pest / use pest as host; kill pest; *Accept other relevant examples and explanations.*	**3**

Question	Answer	Marks
7(a)(i)	*1 mark available for each of four lines correctly linking organ and function.* large intestine – water absorption; liver – production of bile; small intestine – nutrient absorption; stomach – churning and mixing;	**4**
7(a)(ii)	helps to digest cellulose / contains bacteria which help to digest cellulose / absorbs fluids / salts / receives undigested material from the small intestine and passes to the large intestine / produces mucus;	**1**
7(b)	the stomach (system microbes) can digest cellulose; so can digest more (forage) material / food sources; more of the energy from the forage is used / utilised; so a lower amount of forage energy is lost in faeces; bacteria and protozoa secrete enzymes; which digest cellulose etc.; animals chew the cud / regurgitate; so there is a greater surface area for digestion / more mechanical breakdown / increased enzyme activity; absorption in rumen / multiple stomachs; so food is held in digestive system for longer / releases nutrient sources not available to non-ruminants;	**2**
7(c)	increasing the amount of (lower cost) forage in the diet / reduce the amount of (expensive) concentrate feed in the diet; feed (lower cost) conserved plants, e.g. grass as silage; add seasonal waste / abundant root vegetables to the diet, e.g. vegetable leaves; manage forage production more efficiently; use food produced / gathered on farm / use less purchased food;	**1**

Question	Answer	Marks
8(a)	*For example:* consistent / full / smooth coat / no hair loss; yellow / normal coloured / clear urine; faeces does not contain blood / worms / stick to coat / usual consistency; eyes are bright / clear / not watery / dull / sunken; good muscle coverage / rib cage does not stand out; good stance / head up / alert; absence of cough / sneeze / no change in nasal moisture; normal breathing rate; active / not lethargic / energetic; good appetite / eats well; interacts as expected / gathers with other animals / not isolated; calm / lack of erratic behaviour / aggression; no (unexpected) weight loss; normal temperature; death rate not higher than expected / animals do not die unexpectedly; high libido / enthusiastic mating; gaining weight / producing well;	**3**
8(b)	*Suggestions must be different for credit.* *good hygiene:* removes waste / faeces / urine / disinfectants kill pathogens / clean bedding does not host pests / diseases / reduce spread by ingestion by ensuring clean food / water / receptacles / removal of vectors / reduce spread through lack of handler cleanliness by providing clean protective clothing / ensuring change of clothes; *isolation of sick animals:* reduces transfer of infectious agent (microorganisms / oral secretions / lesions / spores) by minimising animal contact / licking / rubbing; *regular health checks:* identifies / treats disease early / prevent transmission to other animals / reduce / remove reservoir of infection; *vaccination of young stock:* prevents infection / reduces pest / disease burden / level of infection; *Accept other relevant suggestions.*	**4**

Question	Answer	Marks
8(c)	costs of treatment / animals die / farm outputs are reduced / damaged / less valuable / unsaleable / in lower demand / product may be contaminated, e.g. parasites in meat;	**1**

Question	Answer	Marks
9(a)(i)	277 / 276.9;	**1**
9(a)(ii)	1100;	**1**
9(b)(i)	breed B may have a longer lifespan / lives longer / be more healthy / be disease resistant; breed B's overall revenue / profit may be higher; milk produced by breed B has the highest fat (proportion / percentage); milk produced by breed B has the highest protein (proportion / percentage); has specific content / the farmer is paid more for breed B's milk / there is a specific market demand type of milk breed B produces; may have good mothering qualities; may be that breed B has a better conformation / additional income is available selling offspring / cull cows for meat; may be that breed B is better suited to the farm environment / climate / feed availability; low purchasing cost;	**3**
9(b)(ii)	keep indoors / restrict movement; selectively breed with higher producing breed; genetic engineering; ensure constant access to water; use zero grazing; increase food intake; increase quality of production ration / food; milk more often / use robotic milker; allow the cow to rest; improve health status;	**3**

Question	Answer	Marks
10(a)	method of crop / livestock production; pests controlled by cultural / biological methods; only organic pesticides used; no synthetic / artificial fertilisers; uses natural fertiliser(s) such as manure / compost; no genetically modified (GM) organisms; antibiotics only to treat illness (not as prophylactics); no growth hormones used;	**3**
10(b)	*1 mark available for each explanation.* organic produce can be more expensive, so demand can be lower; due to lower yield, there can be less to sell; production costs may be higher, qualified, e.g. because more labour is needed; organic food is produced in smaller amounts, so marketing and distribution can be (relatively) less efficient and more expensive; shelf life may be shorter, so there is a limited time to get to market / transport costs may be higher / product wastage can increase; weed / pest / disease may build up, so resulting in yield decline over time; pests may be impossible to control, so farming might not be viable; may take time to establish organic status, so farmers may have to sell for a reduced price / at a loss; *Accept other valid explanations.*	**6**
10(c)	reduced chemical, e.g. pesticide use, so costs are reduced; reduced machinery / labour / training / fuel cost, so fixed and variable costs are reduced; lower fertiliser requirement, so input costs are reduced; reduced (input) costs, so profit margins increase; harvestable crop grown in all climates, so there is less chance of crop failure; higher yields / larger fruit, so there is more produce to sell; added value produce / higher price (nutritional additions, e.g. vitamins / enhanced flavour / health benefits), so there is additional demand from customers; increased shelf-life, so more product can be sold over time / more shops will stock the produce; additional crops can be grown / higher growth rate / repeat planting is possible, so income is higher;	**6**

Question	Answer	Marks
11(a)	competition for water; competition for space; competition for light; competition for minerals / nutrients; harbour pests; harbour diseases; contaminate crop; interfere with harvesting process / damage harvest machinery; *Accept alternative descriptions.*	**4**

Question	Answer	Marks
11(b)	*Accept any relevant different methods. Allow up to 3 marks for a developed description of a weed control technique. Maximum of 3 marks for naming techniques alone.* hoeing; cuts the weeds off at soil level; weed dies / growth rate much reduced / allows crop to outgrow weed species; by hand / machine / physical method; whole weed removed / pulled up / removes rhizome; no weed material remains; ploughing / cultivation / harrowing; bury weeds; roots exposed / destroys plant tissues; ridging; bury weeds; weeds die; burning / clearing field trash; destroys weed; removes weed residue; biological control / introduce an animal / insect; to eat the weeds; weed destroyed / pulled out / regrowth prevented; rotation; breaks life cycle; weed no longer present; intercropping / under sowing; maintains soil coverage; prevents weed growth;	**5**

Question	Answer	Marks
11(b)	plant fast-growing varieties / timely planting; variety out competes weed; weed is unable to grow; mulching; covers up weed / blocks sunlight; weeds are unable to germinate; *Accept other valid points.*	

Question	Answer	Marks
11(c)	*Maximum of 2 marks available for identifying each type of farm chemical.* *1 mark for each explanation of safe storage and usage of different types of farm chemical. Maximum 3 marks per type of chemical.* (nitrogenous) fertilisers; can be explosive; keep in bags / covered / cool / dry; not for too long; out of direct sunlight; can contaminate drinking water; do not apply during heavy rain; do not allow to enter water courses / drains do not apply in very large amounts; pesticides; are toxic; can be explosive; store in correct container / seal container; ventilate to avoid toxic gases; store in locked room / prevent access; store away from food / do not eat / drink / smoke when using; do not use on windy day / prevent chemical drift to populated areas; follow all storage / usage instructions / wear ppe; do not mix chemicals / label chemicals; use in correct dilution; do not apply more than advised; fuels; toxic / carcinogenic; flammable / fire risk; store in bunded container / use correct containers; put lids on containers; avoid fumes; keep away from sources of ignition; store securely / in locked place to avoid being stolen;	**6**

Question	Answer	Marks
11(c)	animal medicines; store securely; document storage / usage; use only as directed; discard when out of date; *Accept other relevant examples and explanations.*	

Question	Answer	Marks
12(a)	is richer in nutrients; requires less fertiliser needed to maintain soil nutrient content; retains more water; has a lower need for irrigation; holds plant roots more strongly; reduces the chance that the plant will fall down / lodge; is less likely to suffer from soil erosion;	**4**
12(b)	add compost to the soil; add manure to the soil; add nitrogen-rich / nitrogenous / compound fertiliser to the soil; example of N-rich compound fertiliser, e.g. 20:10:10; use / plough in green manure; add organic matter, e.g. grass clippings to soil; use a named (fertiliser) compound, e.g. ammonium nitrate / urea; planting legumes;	**6**

Question	Answer	Marks
12(c)	nutrient ions are dissolved in water, so can move and diffuse; by diffusion, which enables ions to move between root cells; in a process of ion exchange, so ions from plant roots move into plant to replace others; by active transport because nutrients move against the concentration gradient; by active transport, so requires energy / ATP; nutrients pass through roots / root hairs, which increases surface area for diffusion; symbiotic relationships, e.g. Rhizobium / fungi / mycorrhizae enhance root surface area so increase uptake; carrier proteins present in root hair cells increase nutrient uptake; transpiration stream / positive pressure (push) from roots / negative pressure (pull) from leaves moves minerals to where they are needed in the plant;	**5**

Question	Answer	Marks
13(a)	*For example:* taken from river / spring water / stream; surface water / lake / reservoir / pond / dam; rain-water collection / collected from roof / gutters / into tank; piped / bought in / mains water supply; drawn from well / borehole / aquifer;	**3**
13(b)	*1 mark for each explanation, for example:* using a tank to store sufficient water for the animals; place the tank up high to ensure high / consistent / enough pressure; use a pump to ensure a supply of water; use of pipes to carry the water securely over a (long) distance / to avoid contamination / to minimise water wastage; use additional tanks / pumps over the distance to the farm buildings so that water pressure does not become too low; pipe-joining detail, e.g. connectors / pressure valves prevent pressure loss / leakage of water; taps allow water usage to be controlled; buckets / troughs can supply water to multiple animals / the herd as a whole; water bowl / nipple drinker allows individual animals to receive water; *Accept other valid explanations.*	**6**

Question	Answer	Marks
13(c)	is not contaminated; does not contain poisonous materials, e.g. pesticides; does not contain pathogens / parasites / carry disease; is potable / palatable to animals; smells good / encourages animals to drink (sufficient) water; helps animals to maintain body processes / cellular reactions; ensures animals remain hydrated; animals can cool themselves in hot conditions / do not overheat / suffer from heat stress; allows many animals can drink at the same time / holds enough water for all the animals / there is only a short wait time to drink / animals do not become stressed; reduces competition for drinking water / prevents animals bullying each other / preventing other animals from drinking; reduces the potential for disease transfer by contact between animals;	**6**

Question	Answer	Marks
14(a)	suitable size, height / area / internal space; roof, to protect from weather (example of suitable materials); walls, made of material strong enough and appropriate to animal; floor, made of durable material / not damaged by hooves / animals walking; door(s), large enough to allow access; door(s), strong enough to be secure; windows, suitable material and position, e.g. glass window high up; water supply, adequate delivery method for volume of water, e.g. troughs / water bowls / pipes / drinkers; ventilation, mechanical / fan / opening / closing windows to allow air circulation; designed to allow safe handling of animals, e.g. crush / race / multiple gates; method to deliver sufficient food, e.g. access to tractor / feed wagon; system to hold the right quantity of feed, e.g. troughs of suitable size / feed passage; suitable lighting for farming activities / assisting with behaviour; relevant legislation and codes of practice to be considered in design; enrichment and socialisation features; suitable waste management system;	**4**

Question	Answer	Marks
14(b)	*1 mark for each explanation.* animals are confined / do not walk around so much, so use more energy for production; land can be used for other enterprises, so farm income increases; closer control of animals, so it is easier to carry out management practices; easier to identify the presence of disease / parasites, so treatment can be given quickly / before more serious damage occurs; animals can be separated, so unplanned mating is reduced, animals are confined, so do not get lost / stolen so easily; animals do not mix with animals from other herds / wild animals, so disease spread from other animals is reduced; animals are secure, so not attacked / killed by predators; pasture and soil are not damaged by grazing, so land is preserved; less forage is damaged by feet / spoiled by dung, so food quantity / quality is higher; increased manure application is possible, so fertiliser costs are reduced; other crops can be grown, so the land can be used more intensively; forage production is increased, so more animals can be kept on the same land area; different feed can be given to different animals, so more production cycles can be used; *Accept other valid explanations.*	**5**

Question	Answer	Marks
14(c)	*3 marks for stating records kept and 3 further marks for suggesting the importance of each record.* *record:* *suggested importance:* identity marking / tagging / animal numbering / freeze branding; to securely identify individual animals for health / management / movement purposes; animal movements / passport; to comply with laws / prevent spread of infection / disease; service date; to predict birth dates / enable effective feeding / management; dam and sire / breeding; so that bloodlines can be maintained / removed as desired; fertility; so that infertile animals / animal families can be removed from the herd / high rates of fertility can be maintained; mortality; so management practices can be reviewed / to reduce death rates; production, e.g. growth rate / milk yield; to prioritise higher output animals during breeding; feeding; to know the higher food intake animals / which foods animals eat the most of; health / allergies / susceptibility to disease / infection; to identify susceptible animals / so herd health status can be improved over time; vaccination; for disease / infection prevention; veterinary treatment; so recurring issues are easily identified / predicted / prophylactic treatment enabled;	**6**

Question	Answer	Marks
14(c)	statutory testing, e.g. TB; at risk animals can be easily quarantined; ease of handling / aggression; aggressive traits can be removed from the herd; *Accept other valid records and suggestions.*	