

0172-504 June 2017

Level 3 Advanced Technical Diploma in Equine Management (540)

Level 3 Equine Management - Theory exam (1)

- 1 Describe **two** advantages of caring for a stable kept horse compared to a grass kept horse. (2 marks)

Guidance

1 mark per correct advantage given - up to 2 marks, accept any other appropriate answer.

- A stabled horse's diet can be monitored more closely than a grass kept horse.
- A stabled horse's water consumption can be monitored more closely than a grass kept horse. [1]
- The horses' health and welfare can be more closely monitored in the stable. [1]
- The horse has complete shelter from exposure to the weather. [1]
- Faecal production can be more easily monitored in the stable. [1]
- Lower herd members in the pecking order will not be threatened or attacked by dominant herd members. [1]
- Grooming, tacking up and training may be easier in a stable kept horse. [1]
- The horse may stay cleaner while being stabled. [1]
- Ill horses can be more easily treated and monitored in the stable. [1]

- 2 Describe the **main** purpose of **one** of the following pieces of legislation:

- Welfare of Animals (Transport) Order 2006
- Horse Passport regulations 2009

(2 marks)

Guidance

2 marks available for correct description of aims and purpose on a selected legislation

Information detailed below gives guidance on some of the information that should be covered.

Not a model answer.

Welfare of Animals (Transport) Order 2006

The legislation imposes restrictions upon the transport of livestock through the introduction of Authorisations (1). All commercial transporters of vertebrate animals must possess either a general or a specific authorisation (1). Specific authorisations apply for the transport of sheep, cattle, goats, pigs and horses for journeys of over 8 hours in road vehicles and for all journeys by sea or air. (1) From July 1998 all staff transporting livestock under a Specific Authorisation must be able to demonstrate that they are competent to handle animals in transport (either through a relevant qualification or through an assessment of practical experience) (1).

Horse Passport regulations 2009

The introduction of Horse Passports will bring the UK in line with laws across the whole of the European Union (1). The object of the legislation is to ensure that horses, which have been treated with veterinary medicines not authorised for use in food-producing animals cannot be slaughtered for human consumption (1). If the UK did not comply, we ran the risk of losing 70% of horse medicines (1). The UK Veterinary authorities have stressed the importance of this measure for horse welfare in the UK (1).

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| <p>The Government and the horse industry believe that other benefits will be realised if all horses have a passport. For example, by discouraging the indiscriminate breeding of horses and ponies that may be of low quality or value (1). Further benefits will be realised from the proposed National Equine Database (NED) that will record details of every horse issued with a passport in the UK. This will improve the ability to monitor disease and prevent outbreaks because information about the numbers of horses and contact details for owners will be available (1). It is envisaged that the NED will provide the equine industry with information for enhanced breeding programmes and research (1).</p> | 2 |
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- 3 Explain **four** factors that need to be considered when carrying out a field assessment to ensure a horse's welfare is maximised. (4 marks)

Guidance

1 mark for each correct factor explained up to 4 marks. Accept any other appropriate answer

- **Size/acreage** in relation to number of horses– average 2 acres for the first horse and 1 extra acre for each additional horse (1).
- Surrounding areas, fencing, gateways and boundaries, including litter – to ensure the **fences are substantial enough** to prevent the horse from escaping (1) and safe to prevent the horse from injury (1).
- **Litter** can cause injury (1) or potentially be ingested by the horse (1).
- **Drainage and ground conditions** – to ensure drainage of land is appropriate to prevent injury (1), illness (1) and disease (1).
- **Soil type** (if applicable) – to assess for any deficiencies in the soil via testing (1), this can then be taken into account when the field is fertilized (1).
- **Shelter/shade** – horses need adequate shelter from the weather in both hot and cold conditions (1)
- **Water availability** – to ensure constant access to fresh clean water (1).
- **Free from poisonous plants and weeds** – to ensure the horse does not have the access to plants which could cause illness (1).
- **Flies and other biting insects** effects of the elements both sunshine and rain (1) - not near stagnant water (1)
- **Location of the field** – noise (1), dangerous roads (1), access to public (1), bridle ways and footpaths (1), security (1)

- 4a State the **main** functions of protein in a horse's body. (2 marks)

Guidance

Up to 2 marks for an accurate description that covers main points correctly

Protein is used within the body **for growth** of tissues (1) and during growth and development of young horses (1), it is also used **to repair** tissues and cells in the horse's body (1). Protein is also involved in the **synthesis of hormones and enzymes** within the body (1). Protein is used to **create antibodies** that fight infection (1). Protein has a major function in the **transportation of molecules** (e.g. haemoglobin) (1), protein is also used as **storage for certain molecules** within the body (1). Protein can also be used as a **source on energy** for the horse (1).

4b Explain how protein is digested and absorbed in a horse's body.

(4 marks)

Guidance

up to 4 marks for correct points of the process

Students will be expected to know that digestion is via enzymes in both the stomach and the small intestine (1). Students will also be expected to explain that absorption occurs across the intestinal lining (1). Examples of information expected is listed below.

Overall enzymatic digestion in the gastrointestinal tract breaks down the protein structure into its Amino Acid components (1).

Protein digestion begins in the stomach with Hydrochloric acid and enzymes starting the breakdown process (1).

Hydrochloric acid and pepsinogen interact to create pepsin, a gastric enzyme which digests protein (1).

Proteins are digested by enzymes via the process of hydrolysis (1)

The digestion continues in the small intestine (1). Digestive enzymes secreted into the small intestine catalyse the breakdown of proteins to Amino Acids via chemical reactions (1).

Absorption takes place when the proteins have been hydrolysed to amino acids (1).

Amino acids have very small dimensions, they are able to penetrate the intestinal lining (1).

From this point on, they enter the bloodstream through tiny veins, which are called capillaries (1).

Once in the bloodstream, amino acids are transported by liquid blood plasma and red blood cells to various tissues, depending on where cell structures need to be created or repaired (1).

5a Explain **two** nutritionally related causes for **each** of the following nutritional disorders found in horses:

- Laminitis
- Colic

(4 marks)

Guidance

1 mark for each correct cause, accept *any other appropriate answer*.

Laminitis

Common nutritional causes

- Obesity – the excessive weight carried by obese horses leads to increased strain on the limbs which can lead to laminitis (1).
- Increased soluble carbohydrate consumption in the form of grass – lush spring grass that is high in carbohydrate can cause laminitis when consumed in excess by horses (1). The high levels of carbohydrate cause disturbances in the large intestine which leads to laminitis (1).
- Increase soluble carbohydrate consumption in the form of concentrate feeds – concentrate feeds high in carbohydrate can cause laminitis when consumed in excess by horses (1). The high levels of carbohydrate cause disturbances in the large intestine which leads to laminitis (1).
- Abrupt changes to a horse's diet, e.g. drastically increasing carbohydrate in diet can cause laminitis because of disturbances in the large intestine (1).

Colic

Common nutritional causes

- Can be caused by an abrupt change of diet (1) which can negatively affect the horse digestive tract and lead to colic .
- Overfeeding [1]
- A lack of roughage in the diet can lead to colic as a blockage can occur within the digestive tract and the horse will be unable to effectively pass waste (1).
- Over fermentation of food in the large intestine can cause a build-up of fluid (1) or gas (1) in the large intestine which can cause colic.
- Poor water intake can also lead to colic as blockages may occur along the digestive tract (1).

5b. Give **two** possible treatment options for **each** disorder in part 5a).

(4 marks)

Guidance

1 mark for each treatment (up to 2 per disorder), accept any other appropriate answer.

Laminitis

Potential treatment options

- The first step in treating a horse with laminitis would be to seek veterinary assistance (1).
- Providing the horse with a deep shavings bed will provide padding for the horse and ease pain during recovery (1).
- Horse will commonly be administered anti-inflammatory medicine (phenylbutazone) to alleviate pain and reduce swelling in the foot (1).
- The horse will also commonly be administered pain killer medicine to help alleviate pain and also to help reduce swelling (1).
- Orthopaedic farriery can take the pressure of the horse's feet with specialist shoeing techniques to help aid recovery (1).
- Reducing the nutritional intake of horses with laminitis can help to treat the condition (1).

Colic

Potential treatment options

- The first step in treating horse with colic is to seek veterinary assistance
- Walking the horse in hand can promote defecation and provide pain relief. It will also prevent the horse from rolling.
- Reducing the horses pain is a common treatment for colic using analgesics.
- Softening any impaction using mineral oil or laxatives is a common treatment.
- Additional fluids or rehydration may be needed in some horses with colic.
- In severe cases of colic the horse may need to be hospitalised for abdominal surgery to treat more severe types of colic.

6a Describe the **three** different routes of medicine administration for horses.

(3 marks)

Guidance

One mark for each correct description even if method is not identified

The three routes of medicine administration,

Topical - application to body surfaces such as the skin or mucous membranes to treat ailments (1) via medications such as creams, foams, gels, lotions, and ointments (1).

Enteral – medication is administration orally via feeding the horse or syringed is digested and absorbed into the bloodstream (1).

Parenteral – medication administration via injecting directly into the horse's body, bypassing the skin and mucous membranes (1). (The common parenteral routes are intramuscular (IM) (1), subcutaneous (SC) (1) and intravenous (IV) (1)).

6b Name an appropriate restraining technique to use on a horse whilst administering medicine. (1 mark)

Guidance - Accept other plausible techniques

Common restraint techniques –

- head collar and lead rope [1]
- bridle [1]
- holding up a leg [1]
- chifney [1]
- sedation [1]
- stocks [1]
- twitch [1]

7 Explain **four** different signs that determine if a horse's hoof is healthy and well maintained. (4 marks)

Guidance

1 mark per correct sign with a description, no marks for just stating, Accept other relevant answers.

- correct shape – both feet are symmetrical [1]
- healthy horn on hoof wall – no cracks (1), splits (1), ridges (1)
- healthy horn on sole of foot – intact (1), slightly concave (1), not crumbling or flaking (1), smooth (1)
- hoof axis/angle – symmetrical (1), hoof pastern axis /angle (1)
- coronet band completely horizontal and straight (1)
- shoes are correct weight and size (1), shaped to fit the foot (1);
- level feet, correct limb alignment for free movement (1);
- no loss of foot bearing surface (1);
- clenches in a regular line, smooth and firm into the hoof wall (1)
- no heat from the feet (1).
- lustrous, naturally glossy hoof wall (1)
- smooth, uniform hoof wall free from cracks (1), rings (1), flares (1), etc.
- hoof wall with a thickness of about 3/8" that tapers smoothly towards the heel (1)
- rubbery, resilient frog twice as long as it is wide (1) without deep cracks (1)
- concave sole that only touches a shoe or pavement where it joins the wall (1)
- hoof that sheds dust (1), mud (1), and water (1)
- no discharge on the foot [1]
- no strong smell from the foot [1]
- the horse is sound [1]

8 Explain **three** potential causes of stereotypical behaviour in a stable kept horse. (3 marks)

Guidance - One mark for each correct description

Stress – domestic horses are kept in a very unnatural environment (1). Horses have evolved to roam large areas of land in a herd trickle feeding for extended periods of time (1). Domestic horses kept in the unnatural stable environment can be under a large amount of stress and stereotypies can develop as a coping function to help the horse deal with the stress (1).

Frustration – Domestic horses can be stabled for extended periods of time with little or no outlet for them to be able to demonstrate their instinctive natural behaviours (1), e.g. trickle feeding, roaming etc. This restriction can cause frustration (1); stereotypies can result as a coping mechanism for the horses' frustration of being in a controlled unnatural environment (1).

Restriction – Domestic horses have many aspects of their natural behaviour restricted. Exercise, feed and water, social interaction, sexual behaviours and herd behaviours are all restricted and controlled in the domestic horses' environment (1). This restriction of the horses' natural behaviour can cause the development of stereotypies as a coping mechanism (1).

Lack of stimuli – As horses are naturally social animals that spend a large portion of their day Trickle feeding, roaming and socially interacting with the herd. This means that naturally horses are exposed to a lot of stimuli (1). In the controlled domestic environment, this stimulus is great reduced which can lead to the development of stereotypic behaviour as a coping mechanism for an environment which is lacking (1).

Underlying problems such as injury, disease or pain [1]

Lack of food, excess energy, weaning, restriction of sexual behaviour, isolation etc. can be accepted Copying is not scientifically proven and therefore not an acceptable answer.

- 9 Horses are often fed a combination of forages and concentrate feeds in their diet. Compare the nutrient content and properties of hay and course mixes. (5 marks)

Guidance

One mark available for each of the following points. Both types of feed must be mentioned for full marks, if only one type is mentioned then a maximum of 3 marks could be gained.

- Hay is comprised of **long fibrous stems of conserved grass**.
- Different hay (grass types) has different levels of **palatability (1) and digestibility (1)**.
- Generally hay has a **lower level of digestibility (1)** compared to course mix because of the increased **content of structural carbohydrates (cellulose, hemicellulose) (1)**
- High levels **of lignin** in conserved forages such as hay reduce the level of digestibility (1) and therefore overall nutrient availability to the horse (1).
- **Different types of grass** used to make hay can have different levels of nutrients (1) which can make some hays higher in energy and nutrients than others (1).
- Hays are comprised of **high levels of structural carbohydrates** in comparison to some course mixes (1).
- The content of **protein, vitamins, minerals and lipase can vary in hay dependant** on grass type (1). This can make hay variable in overall nutrient consistency (1).
- **Course mixes generally have less variability** in nutrient content (1) therefore providing **more consistent** levels of nutrients (1).
- Course mixes are generally **fortified with vitamins and minerals (1)**.
- **Course mixes can contain different levels of nutrients dependant on the type of course mix**. E.g. pasture mix is higher in structural carbohydrates and therefore lower in energy (1).
- **Performance/stud mixes** are higher in non-structural carbohydrates and lipids (1) therefore **providing high levels of energy (1)**.
- *Some types of course mixes are higher in non - structural carbohydrates than hay (1).*
- Course mixes are generally comprised of nuts, chaffs, peas, beans, micronized starch based grains (1).
- The nutritional content and properties **of hay provide slow release energy (1)**. **Course mixes provide quicker release energy** because of the structural properties (1) and increase digestibility pre caecum via enzymatic digestion to monosaccharides (sugars) (1)

- 10 Describe **two** types of natural behaviours seen in a horse living in the natural environment. (2 marks)

Guidance

1 mark for each correct description of the following, up to 2 marks; accept other appropriate answers

- Herd behaviour –live in large groups in the wild consisting of mares, foals, young stock and a stallion. (1)
- Hierarchy behaviour – each herd has a social hierarchy which includes a dominant mare (1).
- Social behaviour - horses in herd constantly interact with each other using various methods of communication (1).
- Body language and communication - horses use various methods of communication including vocal (1), touch (1), mutual grooming (1), physical contact (1).
- Fight or flight response – The horse has evolved as a prey animal and the fight or flight response is the horses' way of protecting itself from predators (1).
- Reproductive behaviour – During the breeding season the stallion will mate with the mares in the herd (1).
- Roaming behaviours – horses instance to roam is linked to the need to consume large amount of forage (1).
- Trickle feeding behaviours – horses constantly graze eating small amounts of forage over long periods of time (1).

- 11a Explain the behavioural effects that very limited exercise and turn out can have on a horse in the stable. (5 marks)

Guidance

One mark for each explanation/description of a behavioural effect.

- This way of life **constricts the natural behaviour** patterns of a horse to a great extent (1).
- Horses stabled for extended periods of time aren't **able to partake in the natural roaming (16 hours a day)** (1) **and trickle feeding behaviour** (1) seen in the natural environment.
- Horses can **experience behavioural problems** when isolated and confined to the stable (1). **Stabling for long periods does not meet horses' needs for exercise** (1), this can result in expression of high levels of activity/undesirable behaviours (bucking/rearing) when given the opportunity to exercise (1).
- Horses with limited turnout/exercise can become **frustrated/stressed** by the inability to exercise (1). They could develop **displacement/unwanted behaviours** (e.g. door banging, wood chewing) (1).
- Horses with **limited turnout/exercise** can become frustrated by the inability to exercise could develop **stereotypic behaviours** (e.g. weaving, box walking, wind sucking, crib biting, self-mutilation) (1).
- Horses can become more likely **to misbehave** during handling e.g. loading (1).
- The **reduced feeding time** which is common in a horse with limited turnout and exercise can lead to the development of stereotypic behaviour (1).

- 11b Describe **three** of the potentially undesirable behaviours that can occur when riding a stable kept horse that has had limited exercise. (3 marks)

Guidance

1 mark for each correct possible effect description up to 3 marks, accept other appropriate answers.

- When ridden, the horse is likely to **be excitable** due to increased energy levels. [1]
- When ridden, the horse is also likely to be **easily spooked** due to increased energy levels (1). May cause accidents
- When ridden, the horse is likely to **nap due** to increased energy levels. [1] May cause accidents.
- When ridden, the horse is likely to **buck due** to increased energy levels. [1] May cause accidents.
- When ridden, the horse is likely to **rear due** to increased energy levels. [1] May cause accidents.
- When ridden, the horse is likely to **bolt due** to increased energy levels. [1] May cause accidents.
- Head shaking

12 Discuss the importance of performing consistent daily management routines in relation to the health and welfare of the horse. (12 marks)

Guidance

Integration Question

Band 1: (0 – 4) marks; basic explanation showing some knowledge of the relation of daily routine in relation to health and welfare, including some technical terms. Basic information given with little or no connection between the overall needs of the horse and its welfare. Little or no justification for daily routines in relation to health and welfare given.

- Knowledge of horses' daily management routines and why it is important for routines to be consistent. (Band 1)
- Knowledge of horses health and welfare needs (Band 1)

Band 2: (5-9) clear explanation showing knowledge and understanding of the relation of daily routine to the health and welfare, including correct use of most technical terms. Detailed information given demonstrating some connection between the overall needs of the horse and its welfare. Some justifications for routines in relation to health and welfare given with reasonable detail

- Relating consistent daily routines to specific health and welfare needs of the horse. (Band 2)
- Discuss the physical and psychological health impacts of inconsistent management routines in the horse – linking to signs of health. (Band 2)
- Can discuss different management systems e.g. field kept if no routine and the benefits of different management systems on health and welfare. (Band 2)
- Can bring in information regarding the five animal needs relating to welfare. (Band 2)

Band 3: (10-12) marks; comprehensive explanation showing accurate knowledge of the relation of daily routines to health and welfare, correct use of all technical terms. Thorough information given demonstrating a detailed connection between the overall needs of the horse and its welfare. Clear and accurate justification for routines in relation to health and welfare given.

- Link this to knowledge of the domestic environment and the evolution of the horse as a trickle feeding prey species. (Band 3)
- Can bring in welfare organisations and their importance to horse welfare and educating/helping animals whose welfare is compromised. (Band 3)