



Australian and New Zealand College of Veterinary Scientists

Membership Examination

Sample written exam 2020

Pig Health and Production

Paper 1

Perusal time: **Fifteen (15)** minutes

Time allowed: **Two (2)** hours after perusal

Answer **ALL FOUR (4)** questions

Answer **FOUR** questions, each worth 30 markstotal 120 marks

Paper 1: Pig Health and Production

Answer all four (4) questions

1. Porcine circovirus type 2 (PCV2) is a common virus in many pig herds.

Answer **all** parts of this question:

- a) Describe the different clinical manifestations of infection with this agent. *(5 marks)*
- b) State how this virus interacts with other infectious agents of pigs. *(1 mark)*
- c) Describe the likely gross pathological changes expected during post mortem of a pig with PCV2 disease. *(5 marks)*
- d) Identify body parts and/or tissue that should be collected for laboratory testing to confirm your diagnosis of PCV2 disease. *(5 marks)*
- e) List laboratory diagnostic tests that should be requested from these samples to confirm the diagnosis of PCV2 disease. *(3 marks)*
- f) Discuss therapeutic and preventative measures available to treat PCV2, including details of any commercial products. *(5 marks)*
- g) Identify production advantages derived from any measures implemented to prevent PCV2 disease. *(4 marks)*
- h) Identify mechanism(s) by which PCV2 might be introduced into a pig herd. *(2 marks)*

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2. Answer **all** parts of this question:

- a) List **five (5)** infectious aetiological agents that may cause diarrhea in 12-week-old pigs in Australia. *(5 marks)*
- b) For each agent identified, describe the location and nature of pathology seen during a gross post mortem, state what body organ or fluid sample should be submitted and identify the laboratory test that should be requested to confirm your diagnosis. *(15 marks)*
- c) Briefly describe the treatment and control of each of the agents you have identified. Include in your answer an appropriate choice of therapeutic agent and the potential for immunological agents to prevent future disease. *(10 marks)*

3. There is continuing pressure to reduce antibiotic use in pork production.

Answer **both** parts of this question:

- a) Discuss the risks and benefits of antibiotic use in pork production systems. *(10 marks)*
- b) Identify measures veterinarians can take to improve antibiotic stewardship in pork production systems. *(20 marks)*

4. Identify major welfare challenges facing the pig industries in Australia and New Zealand and discuss in detail the role of industry quality assurance programmes in meeting the requirements of key stakeholders. *(30 marks)*

End of paper



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Paper 2

Perusal time: **Fifteen (15)** minutes

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Answer **ALL FOUR (4)** questions

Answer **FOUR** questions, each worth 30 markstotal 120 marks

Paper 2: Pig Health and Production

Answer all four (4) questions

1. A 1000-sow breeder farm located in central Victoria has Large White x Landrace sows farrowing weekly in a 'conventional' (concrete-based) shed on a weekly basis. The average weaning weight of piglets is 5.1 kg at 21 days of age. Weaning-to-re-mating interval averages 7.5 days.

Answer **all** parts of this question:

- a) The breeder farm manager would like advice to improve his weaning weight. Identify further information needed to address a low weaning weight on this farm. (10 marks)
 - b) The manager is also concerned about the weaning-to-re-mating interval as it is adding to non-productive days of his farm. State the ideal weaning-to-re-mating interval and identify potential reasons that this might not be achieved. Explain how each potential reason might be resolved. (10 marks)
 - c) The farrowing rate on this farm ranges from 77% (January – March matings) to 89% (July – September matings). State the most likely reason for this variation, assuming staffing on this farm remains unchanged, **and** briefly justify steps that could be taken to increase farrowing rates over summer. (10 marks)
2. A farm housing pigs each in 'ecoselters' in Queensland is experiencing a decline in growth rate among grower and finisher (10–22 weeks of age) pigs. Each 'ecoselter' accommodates 400 pigs. Death rates in this age group have increased from 1.5% to 3% in the last three months. Clinical signs in pigs on the farm include diarrhoea and ill thrift.

Answer **all** parts of this question:

- a) Outline a rational approach to diagnosing this problem. Your response should include likely infectious and non-infectious causes of diarrhoea. (10 marks)
- b) The diagnostic laboratory isolates *Salmonella* sp. from a fresh colon you have submitted. Explain the significance of this result in determining the aetiology of the diarrhoea. (10 marks)
- c) Outline an appropriate approach to treating and managing sick pigs on this farm. (10 marks)

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3. Compare and contrast Swiss depopulation with segregated early weaning as methods of eradicating *Mycoplasma hyopneumoniae* from a commercial pig herd. In your answer, explain the principles of **both** procedures and the relative advantages and disadvantages of each. (30 marks)

4. African swine fever (ASF) is an exotic disease to Australia.

Answer **all** parts of this question:

- a) Describe the clinical signs of ASF that might be observed in an outbreak in a commercial, single-site farrow-to-finish piggery in Australia. (10 marks)

- b) Given few exotic diseases (including ASF) present with pathognomonic clinical signs or lesions, identify criteria that could be used in making the determination that it is time to contact animal health officials over concerns related to an exotic disease incursion, compared to simply following normal procedures for diagnosis of an endemic disease. Identify actions that a private veterinarian should undertake if an exotic disease is suspected. (10 marks)

- c) Identify biosecurity measures that would prevent or reduce the risk of the introduction of ASF into a commercial piggery in Australia or New Zealand. (10 marks)

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