Qualification title: 0173 Level 3 Technicals in Land and Wildlife
Test title: 0173-013
Version: March 2018

Q	Acceptable answer(s)	Guidance	Max mks
1	**Answer:** - humidity - atmospheric pressure - wind - rainfall **1 mark for each point identified (up to 4 marks)**		**4**
2	**Answer:** **1 mark for identifying each process** **1 mark for describing each process** For eg: Condensation **(1)** – water vapour in the air is converted to liquid water **(1)**	*Accept and award marks for any appropriate process and description.*	**8**
3	**Answer:** **1 mark each for naming the biological property** (adhesion/cohesion/solvency) **and 2 marks each for explaining these properties.** For eg: Cohesion **(1)** holds hydrogen bonds together **(1)** to create surface tension on water **(1).**	*Accept and award marks for any other appropriate explanation for cohesion.*	**6**
4	**Answer:** Is a complex process whereby freshly deposited loose grains of sediment **(1)** are converted into rock **(1).**	*Accept and award marks for any other appropriate points.*	**2**
5	**Answer:** **Components** - Proteins - fats - carbohydrates - vitamins and minerals **1 mark for each up to 4 marks**		**4**
6	**Answer:** **Indicative content will include:** - Description of symptoms e.g. poor larval survival, poor juvenile survival, skeletal deformities, pop eye, operculum deformities, spinal deformities, operculum deformities, fin deformities, pop eye.		**12**

	- Excess protein indicator – visceral fat deposits - Excess fat indicator – internal organ failure - Excess carbohydrate indicator – poor growth - deficiency of essential fatty acids - deficiency of vitamin C in cyprinid - stocking densities - Water quality management - Nutritional requirements - Feeding regime/freshness and storage **Band 1: 1 – 4 marks** Basic discussion, showing some understanding of different causes for these symptoms. There is no link between water quality, nutritional requirements and the impact on fish health. There is no indication for effective management of these fish health problems. There will be little or no specialist terminology used. Answer may be disorganised and ambiguous. **Band 2: 5 – 8 marks** Some discussion, showing good understanding of different causes for these symptoms. There is an attempt made to link water quality, nutritional requirements and the impact on fish health. There is reference to basic management methods for these problems, with some reasoning. There will be some use of specialist terminology, although they may not always be used appropriately. The information is presented mostly in a structured format. **Band 3: 9 - 12 marks** Detailed discussion, showing good understanding of different causes for these symptoms. There is a clear link between water quality, nutritional requirements and the impact on fish health. Management methods for these problems are in depth with strong reasoning. Specialist terminology will be used correctly and appropriately throughout. Information will be presented in a well-structured format.		
7	**Answer:** a) Food Conversion Ratio (FCR) **(1 Mark)** b) - Extruded pellets - Flake - wet fish - grain - live plankton **1 mark for each up to 2 marks**		**3**
8	**Answer:** Definition of Osmoregulation **(1 mark)**		**5**

	Process of osmoregulation osmosis and diffusion – movement of salts across the semi permeable membrane **(1 mark)** to the area of weaker salt solution **(1 mark)**; while the water molecules **(1 mark)** will move to the area of stronger salt solution **(1 mark)**	*Accept and award marks for any appropriate explanation of the process.*	
9	**Answer:** External parasites **(1 mark)** are irritants and so the fish is flashing to knock the parasite off **(1 mark)**		**2**
10	**Answer:** **10a) 1 mark for each Fungal infection –** - Saprolegniasis - Icthyophonsis - Branchiomycosis **10b. Answer:** Description that includes the following stages *Eg: Saprolegniasis* - Diploid life cycle - Reproduces asexually & sexually - Spores/Zoospores - Spore Encysting, - Germinating, Dispersal & Infection - Substrate/host attachment - Gametangium - Antherida - Oogonium Zygote/Oospore **1 mark for each stage** up to 5 marks. **1 mark** is for describing the stages in the correct order **10c. 1 mark for each treatment method** - Formalin - melafix - salt - net dips - water changes - tree essential oils - copper sulphate **Any other appropriate answer**	*Accept and award marks for any other appropriate answer.* *At least 3 consecutive stages should be in the correct order to get this mark.*	**10**
11	**Answer:** Classifications: - Protozoan - Mesozoan - Ectparasites - Endoparasites		**4**

	1 mark for each up to 4 marks		