Example answer to practice question 1 (Chapter 7)

This model answer is a guide for students in terms of structure and content. It represents above-average work.

1. To what extent do biological factors influence one or more health-related behaviours? [22 marks]

I have chosen to address this question in the context of two health-related behaviours: alcoholism and obesity.

Alcoholism can be defined as a disabling addictive disorder characterized by a compulsive need for alcohol that leads to negative effects on the drinker’s physical, emotional and social health. As with other drug addictions, alcoholism is seen by Western medical establishments as a treatable disease. It is characterized by an incremental physiological tolerance for the drug. There are serious biological consequences for alcoholics such as brain shrinkage, liver disease and strokes.

There are strong hints of biological determinism in alcoholism. For example, alcoholism runs in families and is particularly prevalent within male bloodlines. According to the US Centers for Disease Control, about 17% of men and 8% of women in the USA become alcoholics at some point in their lives, suggesting a biological trait linked to gender. However, addiction is linked to risk-taking behaviour and a tendency to favour short-term over long-term rewards, which may go some way to explaining why addiction is more prevalent in men than women. Alcoholism is more likely to develop in those exposed to the drug early. This suggests alcohol can influence the development of the adolescent brain.

Cross (2004) cites Enoch who speculates genetic predisposition manifests itself in different ways in different racial and cultural groups. For example, Enoch found some members of a Native American tribe who are exposed to environmental stresses such as poverty, trauma and deprivation, and have a certain genotype seem to be protected against alcoholism. But the same genotype expressed in European men is associated with late-onset alcoholism and increased alcohol consumption. She speculates that this genotype leads to an anxious personality and that Europeans who have this type of personality may drink to relieve anxiety as is the norm in this culture. However, in Native Americans, a more cautious temperament may actually protect against drinking excesses as the individual will be more sensitive to the effects of alcoholism and seek to avoid them.

Lingford–Hughes used brain-imaging techniques to look at the number of GABA receptors in the brains of alcoholics. He found fewer receptors in the frontal lobes of alcoholics’ brains compared to non-alcoholics. GABA is thought to be involved in calming the body, fewer GABA receptors would suggest a greater susceptibility to anxiety and therefore an increased likelihood of alcohol consumption in certain cultural groups. However, it is not clear if the brain differences are a cause or consequence of alcohol susceptibility.
However, in the modern Western world, manufacturers of alcoholic drinks spend a great deal of money convincing people that alcohol is a desirable and an appropriate lifestyle choice from which the user will receive positive consequences. For many adults, it would be very difficult to imagine socializing without drinks being available. Saffer and Dave (2003) found heavy advertising by the alcohol industry in the USA has such a considerable influence on adolescents that its removal would lower underage drinking. Snyder et al. (2006) found that youths who saw more alcohol advertisements drank more, on average. They also found young people from markets with more alcohol advertisements showed increased drinking levels into their late 20s, whereas drinking reached a plateau in the early 20s for young people from markets with fewer advertisements. Therefore, while there are strong biological links to alcoholism, sociocultural factors regulate and heavily influence how people perceive alcohol and why they ingest it. It should also be noted that genetic predisposition does not determine behavioural destiny and families without a history of alcoholism can still produce alcoholics.

According to the World Health Organization, obesity is a medical condition in which excess body fat has accumulated to the extent that it may have an adverse effect on health. Most cases of obesity are caused by poor diet (characterized by cheap, highly processed food), lack of exercise and lack of self-discipline. However, there are some biological factors that may explain obesity.

Some obesity may be connected with very rare genetic disorders, such as Froehlich’s syndrome in boys, Laurence–Moon–Biedl syndrome and Prader–Willi syndrome. There will also always be biological variations in energy intake for individuals and basal metabolic rate may well be under genetic influence (although definitive studies do not yet exist). Other bodily processes such as the rates of carbohydrate-to-fat oxidation and the degree of insulin sensitivity, which are closely involved in energy balance and therefore body weight (Ravussin, 1993), may also play a part. But these processes alone cannot account for the rapid growth of obesity in society nor the obesity within individuals. There have always been different body styles in human history but never has the human body been so overweight on such a scale before. The evidence is weak for innate predetermined factors in individuals to explain the obesity epidemic but that does not mean other physiological mechanisms influence appetite and weight gain.

Kessler (2010) argues food is designed by corporations to make consumers become conditioned hypereaters: ‘conditioned’ because food intake becomes an automatic response to widely available food, ‘hyper’ because the eating is excessive and hard to control. For example: Higher sugar, fat and salt intake actually make the individual want to eat more as they make the intake of food compelling for the brain. Neurons are stimulated and release dopamine, a chemical that has been linked with making people want to eat more. Food manufacturers understand this and deliberately engineer food to be ‘compelling’. Therefore, food is engineered to produce a bliss point thus maximizing the chances of the consumer eating more as well as receiving positive rewards for eating the product.

However, despite this evidence, biological determinants to explain obesity are not as convincing as sociocultural explanations. The social learning theory assumes people learn behaviour via processes present in the environment or culture (e.g. modelling and conditioning) via reward and punishment. Wilkinson (2010) reported on a British study that analysed 12 000 3-year-olds who were raised either by their grandparents or by their
parents. The study suggests the risk for becoming overweight was 34% higher if grandparents cared for children full-time. It was further suggested that this was connected to grandparents using food as a reward for good behaviour as well as being less inclined to restrict children’s urges. Corporations spend huge amounts making food desirable by paying celebrities and sports stars to provide positive associations with food high in empty calories. This is compounded by modern sedentary lifestyles characterized by a lack of physical exertion and constant eating. Therefore, while there are some biological determinants that influence excessive calorie intake, the emphasis for future research should be firmly on why people fail to heed health warnings and commit to lifestyle choices that endanger their health.