**PART IX WIDER CONTEXTS**

Chapter 20

1. Genetic change, individual learning and transmitted culture may all provide adaptive solutions to social and ecological problems. Which set of statements offers the most plausible account of how the time scale of environmental change might impact on these various solutions?
2. If the time scale is very slow (100,000 years) culture will be the best type of solution since there will be time for cultural variant to emerge
3. If the time scale of change is very fast (50 years) then cultural solutions will quickly become out of date and individual learning mechanisms will be favoured
4. If the time scale is very slow (100,000 years) genetic adaptation will be the best type of solution since there will be time for genetic variants to emerge
5. If the time scale of change is over several generations (e.g. 200 years ) then this is too short for genetic variant to emerge but long enough for transmitted culture to provide adaptive solutions
6. (i) and (ii)
7. (ii) and (iii) and (iv)
8. (i) and (iv)
9. (iii) only
10. (iv) only
11. Here are some statements about Lactose intolerance and tolerance.
12. Lactose intolerance that affects most native people in SE Asia is the result of a mutation that occurred about 10,000 years ago
13. Lactose tolerance is the result of a single mutation that occurred about 75,000 years ago in populations that moved out of Africa. All lactose tolerant populations are now descended from that population.
14. Lactose tolerance is the result of a SNP mutation on a controller gene. It has occurred several times in recent (i.e. circa 10,000 years BCE) human history and is an example of convergent evolution.
15. Lactose tolerance arises from a gene that continues to make lactase into adult life
16. The lactose intolerance of aboriginal peoples of N America and Australia is probably similar to the ancestral state of all humans before the rise of pastoralism and farming.

Which set of statement is most accurate?

1. (i)
2. (i) and (iii)
3. (iii), (iv) and (v)
4. (ii) and (v)
5. (i) and (iv)
6. The gene producing salivary amylase is abbreviated as AMY1. Different primates and human groups have different copy numbers. Here are some statements about this phenomenon.
7. Chimpanzees have higher copy numbers of AMY1 than humans since their diet is rich in sugars and carbohydrate.
8. Chimpanzees have low copy numbers (2) since they eat little carbohydrate compared to humans.
9. Human groups that eat a lot of fish and meat have high copy numbers to ensure the little carbohydrate they do eat is effectively digested.
10. The fact that human groups differ in their copy number is a good example of gene-culture evolution : cultural change (diet) can cause genetic change (copy number)
11. Since all humans belong to the same species they all have the same copy number – a figure that differs from that of chimpanzees.
12. Human groups that eat a lot of carbohydrate have high copy numbers to produce enough enzyme to aid digestion in their carbohydrate-rich diet.
13. (i) and (v)
14. (ii) and (v)
15. (iii)
16. (ii), (iv) and (vi)
17. (iii), (iv) and (ii)
18. In the context of trying to apply evolutionary thinking to the problem of religious belief, what is a “hypersensitive agency detection device”?
19. A part of the brain that delivers fitness benefits to contemporary humans if they belong to a religious community
20. A type of pathogenic meme that in inherited mentally but causes damage to the host
21. A memetic symbiont: a set of ideas and attitudes inherited mentally but one that provides fitness benefits to the host
22. A tendency of the brain to interpret natural phenomenon in terms of the operation of a conscious and purposeful agency.
23. A bias in learning such that we tend to copy prestigious members of the group.

Chapter 21

1. Which sentence best describes a potential evolutionary view of ethics
2. Ethics consists of the discovery of transcendental entities as rules that have evolved through time.
3. Ethics will be greatly clarified when we can abandon our anthropocentric stance and discover ethical codes that can apply to all species.
4. Ethics is the demonstration of how evolution is powerless to explain the inner feelings, yearnings and moral convictions that all human’s feel
5. Ethics is the expression of moral passions – emotions and feelings that have evolved over time to ensure that we reap the individual benefits of social cooperation
6. Ethics is purely a cultural phenomenon and evolution has nothing to say about culture.
7. What is the naturalistic fallacy?
8. The belief that all natural phenomena can be explained by science
9. The fallacy that Darwinian can explain ethics which is really the study of cultural not biological artefacts
10. The idea that we can infer what we should do from the way things are
11. The idea that ethical consciousness can ever evolve by natural means
12. The idea that ethical principles can be found in non-human organisms.
13. Which statement best summarises Hume’s’ contribution to the study of ethics
14. Hume showed that ethics can never be part of the sphere of explanation of biology
15. Hume showed that ethics cannot be reduced to the behaviour of humans or animals but consisted of eternal and unfathomable verities
16. Hume thought that Darwin could explain how ethics evolved but could not answer the ultimate question whether ethical principles were really correct.
17. Hume was an early exponent of Social Darwinism showing how Darwinians principle could help us apply rational ethics to social development
18. Hume located morality in sentiment and as such paved the way for a Darwinian understanding of morality as evolved dispositions and emotional reactions.
19. Which set of statements best describes the linkage proposed by some evolutionary biologists between morality, pathogen prevalence and the behavioural immune system?
20. When the immune system is activated by the presence of pathogens then moral codes lapse as survival becomes more important that good conduct
21. One way to avoid pathogens is to experience emotions such as disgust in situations where pathogens might be prevalent; this emotion of disgust can be related to moral notions of purity and correct behaviour
22. The behavioural immune system leads us to avoid pathogens by treating pests (such as rats) in a way different form other animals and thereby having different moral standards towards other animals
23. Infections often cause humans to behave in an irrational and immoral manner, this is triggered by the behavioural immune system which alters physiological systems
24. The behavioural immune system motivates people to mate with others sharing similar and compatible MHC complexes, this leads to in group cohesion and a distrust of outsiders.