

**Biology 2201
Common Exam June 2011
Answer Sheet**

Part 1: Multiple Choice

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|-----|---|-----|---|-----|---|
| 1. | B | 21. | A | 41. | D |
| 2. | B | 22. | A | 42. | A |
| 3. | D | 23. | C | 43. | C |
| 4. | B | 24. | D | 44. | D |
| 5. | D | 25. | B | 45. | B |
| 6. | B | 26. | D | 46. | C |
| 7. | C | 27. | A | 47. | C |
| 8. | C | 28. | B | 48. | C |
| 9. | D | 29. | A | 49. | B |
| 10. | D | 30. | D | 50. | D |
| 11. | C | 31. | D | 51. | C |
| 12. | A | 32. | C | 52. | C |
| 13. | A | 33. | A | 53. | A |
| 14. | A | 34. | D | 54. | D |
| 15. | A | 35. | B | 55. | A |
| 16. | A | 36. | B | 56. | B |
| 17. | B | 37. | D | 57. | C |
| 18. | D | 38. | C | 58. | A |
| 19. | B | 39. | C | 59. | D |
| 20. | A | 40. | B | 60. | B |

Part 2: Questions

61. a. Mitochondria release energy from glucose molecules (by aerobic respiration). (1 mark)
Having a high number of mitochondria per cell increases the amount of energy released. This would be beneficial to the athlete. (1 mark)
- b. Eukaryotic. (0.5 marks)
- Any one of the following: (0.5 marks)
- (i) nucleus present
 - (ii) membrane-bound organelles
 - (iii) high level of complexity
- c. Person C has the highest blood glucose level, so this person's cells will have greater access to energy through cellular respiration. Active transport requires cellular energy in order to move materials against the concentration gradient. (2 marks)
62. a. Any two of the following: (2 marks)
- internal development versus external development
 - internal fertilization versus external fertilization
 - 4 chambered heart versus a 3 chambered heart
 - mammals have more efficient respiratory systems
- b. Any two of the following: (2 marks)
- exoskeleton
 - jointed appendages for wide range of motion
 - wings for flight
 - high rate of reproduction
- c. DNA is unique to individuals. Through the comparison of DNA at the crime scene to DNA of the suspects, police could identify the person who committed the crime. (2 marks)
63. a. Any two of the following: (2 marks)
- increased heart rate which leads to increased blood flow
 - vasodilation bringing blood to surface of skin permitting release of heat
 - sweat would also release heat and the moisture would help cool the body
 - in the warmer conditions the body will release heat to maintain stable internal conditions
- b. Intestinal villi increase surface area of the intestine for greater absorption of nutrients. (1 mark)
- Reducing the number of villi reduces the number or amount of nutrients that can be absorbed. (1 marks)
- c. (0.5 marks for each point)
- Exposure to vaccine increases active immunity.
 - Introduction of the pathogen would cause production of antibodies.
 - This causes the body to respond faster and produce higher levels of antibodies.
 - Students exposed to the pathogen would have fewer hospital visits due to an increased immunity.
64. a. The population has reached its carrying capacity. (1 mark)
This is the maximum size of population that can be sustained. (1 mark)

b. Estimates should be between 66 - 68. (0.5 marks)

Students should recognize that the population has moved into Stage 3 or 4 of demographic transition. If they say Stage 3 their estimate should be 67 or 68. If they say Stage 4 the estimate should be 66. (0.5 marks)