TOPIC 2 REVIEW QUESTIONS

1. The Pareto frontier is defined as "the set of allocations in which social surplus is maximized".

A. True.

B. False.

2. If a reallocation creates social surplus than it must also create a Pareto improvement.

A. True.

B. False.

3. If a reallocation has a positive net social benefit then it must create social surplus.

A. True.

B. False.

4. If allocation A Pareto-dominates allocation B then allocation B cannot lie on the Pareto frontier.

A. True.

B. False.

5. If allocation A is Pareto efficient, and allocation B is not Pareto efficient, then allocation A must Pareto-dominate allocation B.

A. True.

B. False.

6. Figure R2-1 depicts a two-person exchange economy. A proposed reallocation would move this economy from point B to point P. The proposed reallocation is a Pareto improvement.

A. True.

B. False.

7. Consider again the setting described in **Question 6** above. Which of the following statements are false?

A. Allocation Q Pareto-dominates allocation B.

B. Allocation R is in the core with respect to allocation B.

C. Allocation P and allocation R cannot be Pareto-ranked.

D. Allocation P and allocation Q can be Pareto-ranked.

8. Consider again the setting described in **Question 6** above. The set of allocations that Pareto-dominate B includes allocations Q and R.

A. True.

B. False.

9. In the context of a social choice rule, "independence of irrelevant alternatives" requires that the social ranking over two allocations x and z is independent of individual rankings over x and y, and z and y.

A. True.

B. False.

10. One implication of Arrow's Impossibility Theorem is that a benevolent dictator can maximize social welfare if and only if she has complete knowledge of the individual preferences of all citizens.

A. True.

B. False.

11. Consider a setting in which three individuals have the following preference rankings over three candidates *X*, *Y* and *Z*:

Person 1: $X > Y > Z$

Person 2: $X > Z > Y$

Person 3: $Y > X > Z$

A two-step pair-wise majority voting rule in this setting will produce *X* as the winning candidate regardless of the voting agenda.

A. True.

B. False.

Questions 12 – 17 relate to the following two-person exchange economy. Person 1 has preferences represented by

$$u_1 = x_1 y_1$$

and person 2 has preferences represented by

$$u_2 = x_2 y_2$$

The fixed amounts of good *x* and good *y* are $X = 100$ and $Y = 100$ respectively.

12. The MRS for person 1 is

A. $MRS_1 = x_1 y_1$

B. $MRS_1 = \dfrac{x_1}{y_1}$

C. $MRS_1 = \dfrac{y_1}{x_1}$

D. None of the above.

13. The Pareto frontier for this economy is given by

A. $y_1^{PF} = \frac{x_1^2}{x_1 + 100}$

B. $y_1^{PF} = x_1$

C. $y_1^{PF} = \frac{2x_1}{x_1 + 100}$

D. $y_1^{PF} = \frac{x_1}{x_1 + 200}$

14. Suppose the current allocation in this economy is one with an even split of the available goods: $\{ x_1 = x_2 = 50 , \ y_1 = y_2 = 50 \}$. This allocation is Pareto efficient.

A. True.

B. False.

15. Suppose instead the current allocation in this economy is $\{ x_1 = y_1 = 25 ,$ $x_2 = y_2 = 75 \}$. This allocation is Pareto efficient.

A. True.

B. False.

16. Suppose the current allocation in this economy is $\{ x_1 = 25 , \ y_1 = 75 , \ x_2 = 75 ,$ $y_2 = 25 \}$. Call this allocation E. This allocation is Pareto efficient.

A. True.

B. False.

17. Recall allocation E from **Question 16** above. In comparison, consider the following allocations:

P = { $x_1 = 50$, $y_1 = 50$, $x_2 = 50$, $y_2 = 50$ }

Q = { $x_1 = 45$, $y_1 = 50$, $x_2 = 55$, $y_2 = 50$ }

R = { $x_1 = 40$, $y_1 = 40$, $x_2 = 60$, $y_2 = 60$ }

S = { $x_1 = 45$, $y_1 = 45$, $x_2 = 55$, $y_2 = 55$ }

Which of the following statements are false?

A. Allocation P is in the core with respect to E.

B. Allocation Q Pareto-dominates allocation E but is not in the core with respect to E.

C. Allocation R is on the Pareto frontier but is not in the core with respect to E.

D. Allocation S is not in the core with respect to E.

Questions 18 – 23 relate to the following two-person exchange economy. Person 1 has preferences represented by

$$u_1 = x_1 y_1^2$$

and person 2 has preferences represented by

$$u_2 = x_2 y_2$$

The fixed amounts of good *x* and good *y* are $X = 100$ and $Y = 100$ respectively.

18. The MRS for person 1 is

A. $MRS_1 = 2x_1 y_1$

B. $MRS_1 = \dfrac{2x_1}{y_1}$

C. $MRS_1 = \dfrac{y_1}{2x_1}$

D. None of the above.

19. The Pareto frontier for this economy is given by

A. $y_1^{PF} = \frac{x_1^{\frac{1}{2}}}{x_1 + 100}$

B. $y_1^{PF} = \frac{x_1}{2}$

C. $y_1^{PF} = \frac{2x_1}{x_1 + 200}$

D. $y_1^{PF} = \frac{200x_1}{x_1 + 100}$

20. Suppose the current allocation in this economy is one with an even split of the available goods: $\{ x_1 = x_2 = 50 , \ y_1 = y_2 = 50 \}$. This allocation is Pareto efficient.

A. True.

B. False.

21. Suppose instead the current allocation in this economy is $\{ x_1 = 60 , \ y_1 = 75 , \ x_2 = 40 , \ y_2 = 25 \}$. This allocation is Pareto efficient.

A. True.

B. False.

22. The allocation from **Question 20** has higher social welfare then the allocation from **Question 21** because the former has a more equal distribution of the available goods.

A. True.

B. False.

23. Suppose the current allocation in this economy is $\{ x_1 = 25 , \ y_1 = 75 , \ x_2 = 75 , \ y_2 = 25 \}$. Call this allocation E. This allocation is inefficient.

A. True.

B. False.

24. Recall allocation E from **Question 23** above. In comparison, consider the following allocations:

P = { $x_1 = 50$, $y_1 = 50$, $x_2 = 50$, $y_2 = 50$ }

Q = { $x_1 = 45$, $y_1 = 50$, $x_2 = 55$, $y_2 = 50$ }

R = { $x_1 = 25$, $y_1 = 40$, $x_2 = 75$, $y_2 = 60$ }

S = { $x_1 = 45$, $y_1 = 55$, $x_2 = 55$, $y_2 = 45$ }

Which of the following statements are true?

A. Allocation P is in the core with respect to E.

B. Allocation Q Pareto-dominates allocation E but is not in the core with respect to E.

C. Allocation R is on the Pareto frontier but is not in the core with respect to E.

D. Allocation S is in the region of mutual benefit with respect to E.

25. The Pareto criterion tells us that if allocation A is Pareto efficient, and allocation B is inefficient, then allocation A is better than allocation B.

A. True.

B. False.

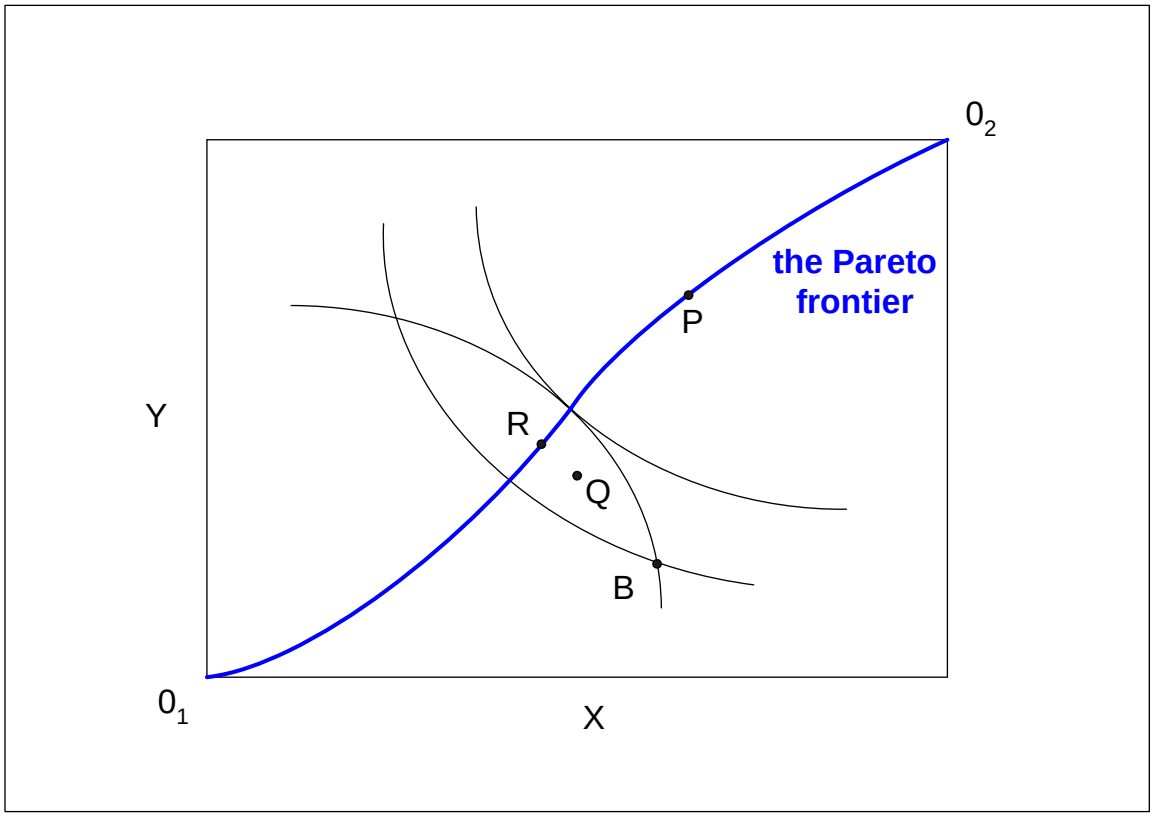

Figure R2-1

ANSWER GUIDE

1. B
2. B
3. A
4. A
5. B
6. B
7. D
8. A
9. A
10. B
11. A
12. C
13. B See Figure R2-2
14. A
15. A
16. B
17. D
18. C
19. D See Figure R2-3
20. B
21. A
22. B
23. A
24. C
25. B

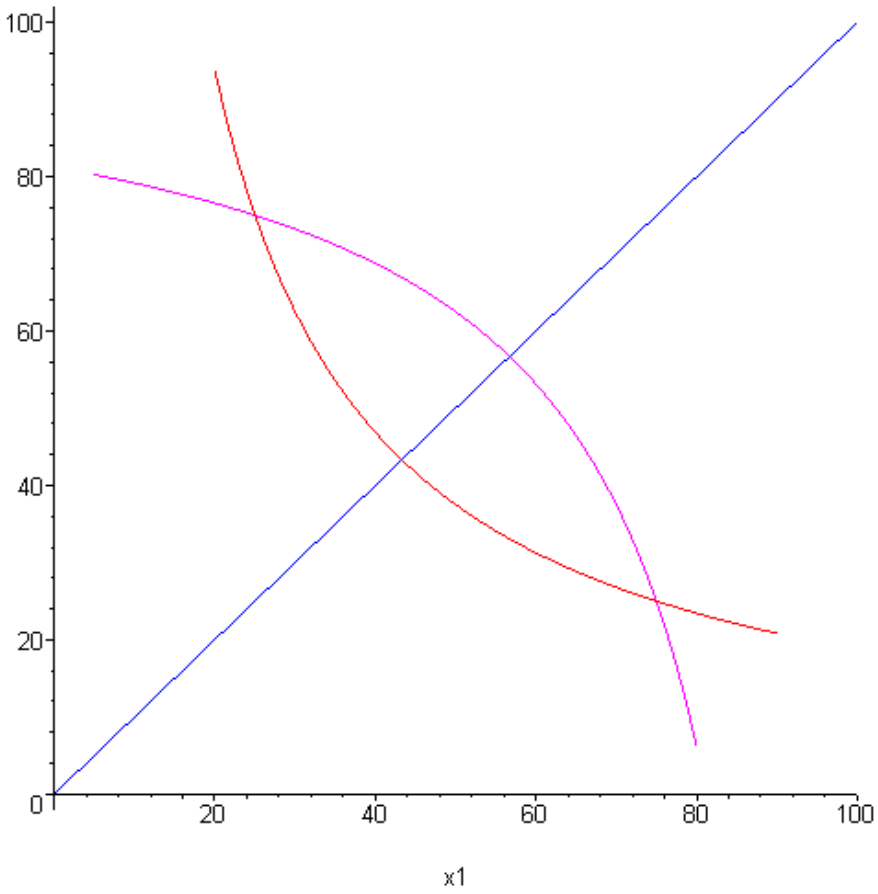

Figure R2-2

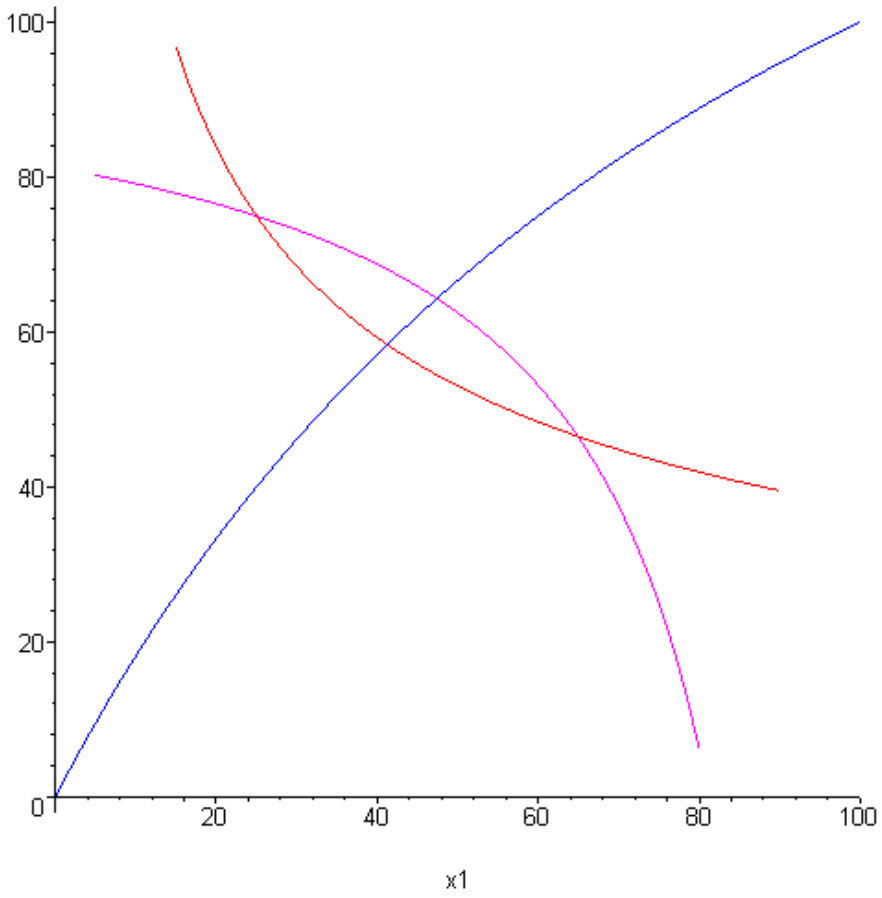

Figure R2-3