Unit 8 - Week 6

Assignment 6

The due date for submitting this assignment has passed.
As per our records you have not submitted this assignment.

Due on 2020-03-11, 23:59 IST.

1) Suppose X is a metric space and (X, f) is a topologically transitive system, then; *1 point*

- [ ] If X is finite then X will be the union of two or more disjoint orbits of periodic points
- [ ] If X is finite then X consists of the orbit of a single periodic point
- [ ] If X is an interval then the system contains a periodic point of period 6
- [ ] If X is an interval then the system contains a periodic point of period 24

No, the answer is incorrect.
Score: 0

Accepted Answers:
If X is finite then X consists of the orbit of a single periodic point
If X is an interval then the system contains a periodic point of period 6
If X is an interval then the system contains a periodic point of period 24

2) Suppose (I, f) is a dynamical system where I is an interval. If the set of periodic points is dense in I then; *1 point*

- ( ) (I, f) will have sensitive dependence on initial conditions
- ( ) (I, f) will be topologically transitive
- ( ) (I, f) is topologically transitive then (I, f) will have sensitive dependence on initial conditions
- ( ) Further if (I, f) will have sensitive dependence on initial conditions then (I, f) is topologically transitive

No, the answer is incorrect.
Score: 0

Accepted Answers:
(I, f) is topologically transitive then (I, f) will have sensitive dependence on initial conditions

3) Consider the map $f : [0,1] \to [0,1]$ defined as $f(x) = \begin{cases} 2x & 0 \le x \le \frac{1}{2} \\ \frac{3}{2} - x & \frac{1}{2} \le x \le 1 \end{cases}$ then; *1 point*

- [ ] The system is transitive
- [ ] The system is not transitive
- [ ] There is an uncountable set of periodic points
- [ ] There is no eventually periodic point other than the periodic points

No, the answer is incorrect.
Score: 0

Accepted Answers:
The system is not transitive
There is an uncountable set of periodic points

4) Which of the following is/are dynamical invariants; *1 point*

- [ ] Denseness of periodic points
- [ ] Sensitivity
- [ ] Topological Transitivity
- [ ] None of the above

No, the answer is incorrect.
Score: 0

Accepted Answers:
Denseness of periodic points
Topological Transitivity

5) Which of the following is/are true; *1 point*

- ( ) Product of two transitive systems need not to be a transitive system
- ( ) Product of two transitive systems is always a transitive system
- ( ) For two dynamical systems (X, f) and (Y, g), $(X \times Y, f \times g)$ is transitive if and only if $X = Y$
- ( ) For two dynamical systems (X, f) and (Y, g), $(X \times Y, f \times g)$ is transitive if and only if $X = Y$ and $f = g$.

No, the answer is incorrect.
Score: 0

Accepted Answers:
Product of two transitive systems need not to be a transitive system

6) Which of the following is/are true; *1 point*

- ( ) A weak mixing system is always minimal
- ( ) A weak mixing system is always transitive
- ( ) A minimal system is always weak mixing
- ( ) A transitive system is always weak mixing

No, the answer is incorrect.
Score: 0

Accepted Answers:
A weak mixing system is always transitive

7) Which of the following is/are true; *1 point*

- ( ) A weak mixing system is always sensitive
- ( ) A transitive system is always sensitive
- ( ) A minimal system is always sensitive
- ( ) An equicontinuous system is always sensitive

No, the answer is incorrect.
Score: 0

Accepted Answers:
A weak mixing system is always sensitive