

Unit 12 - Week 10

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Week 10 Assignment 10

The due date for submitting this assignment has passed. **Due on 2020-11-26, 23:59 IST.**
As per our records you have not submitted this assignment.

1) Intelligent transportation systems (ITS) draws from which four disciplines, in addition to the transportation engineering and planning? 1 point

- a) Physics, Chemistry, Communication technologies and Management strategies
- b) Economics, Communication technologies and Management strategies
- c) Computer Science, Electronics, Communication technologies and Management strategies
- d) None of the above

- a)
 b)
 c)
 d)

No, the answer is incorrect.
Score: 0
Accepted Answers:
c)

2) Which of the following is NOT an ITS service? 1 point

- a) Automatic Vehicle Monitoring
- b) Travel Information Displays
- c) Electronic Fare Collection
- d) Designing ITS facility

- a)
 b)
 c)
 d)

No, the answer is incorrect.
Score: 0
Accepted Answers:
d)

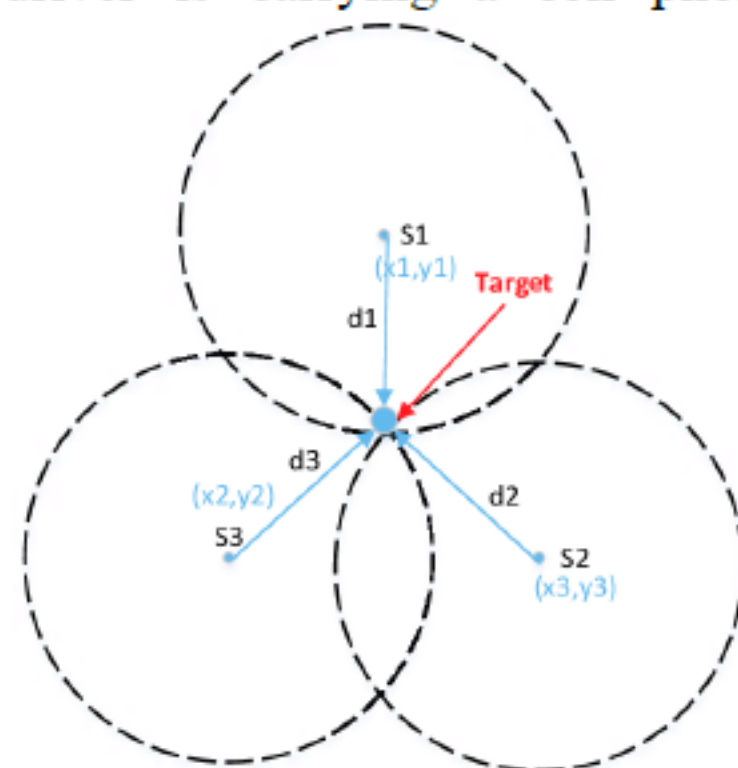
3) Based on which principles do the cell phone tower determine the cell phone location? 1 point

- a) Triangulation
- b) Trilateration
- c) Both (a) and (c)
- d) None of the above

- a)
 b)
 c)
 d)

No, the answer is incorrect.
Score: 0
Accepted Answers:
b)

4) Determine the position of a car which is 15 km, 35 km and 45 km from cell phone towers S1, S2 and S3 respectively. The distance between the tower S2 and S3 is 50 km. Assume the driver is carrying a cell phone which could be used for 1 point



trilateration considering the 3 cell phone towers. Also assume that the car is in a Cartesian co-ordinate system (i.e. X-Y plane).

- a) (-30, 6, 33)
- b) (30, 6, 33)
- c) (33, 30, 6)
- d) (33, -30, 6)

- a)
 b)
 c)
 d)

No, the answer is incorrect.
Score: 0
Accepted Answers:
c)

5) What is the full form of RFID? 1 point

- a) Radio Frequency International Distance
- b) Radio Frequency Identification
- c) Radio Frequency Identity Disabler
- d) Radio Field Identity Disabler

- a)
 b)
 c)
 d)

No, the answer is incorrect.
Score: 0
Accepted Answers:
b)

6) In ITS taxonomy—a common framework for planning, defining, and integrating intelligent transportation systems is termed as: 1 point

- a) ITS User Services
- b) ITS Planning
- c) ITS Architecture
- d) None of the above

- a)
 b)
 c)
 d)

No, the answer is incorrect.
Score: 0
Accepted Answers:
c)

7) Which of the following ITS components helps in automatic data acquisition? 1 point

- a) Dedicated Short-Range Communications (DSRC)
- b) Continuous Air-interface Long and Medium range (CALM)
- c) Automatic Vehicle Identifiers (AVI)
- d) None of the above

- a)
 b)
 c)
 d)

No, the answer is incorrect.
Score: 0
Accepted Answers:
c)

8) Which of these is an example of V2I communication? 1 point

- a) Blind Spot Monitoring (BSM)
- b) Automatic Emergency Braking (AEB)
- c) Lane Departure Warning System (LDWS)
- d) None of the above

- a)
 b)
 c)
 d)

No, the answer is incorrect.
Score: 0
Accepted Answers:
d)

9) Consider a sample of weekday sighting data. Use K-means distance based clustering to group the sightings to two groups (K=2), and determine suitable activity locations from the same. For simplicity, do not go beyond one iteration. Assume $D_{min}=2$ units. Round up answers to two decimal places. 1 point

S No.	ID	Time(hhmmss)	Location (X,Y)
1	3X35E90	095155	(1.5,1.5)
2	3X35E90	112532	(2,1.75)
3	3X35E90	124532	(2,3)
4	3X35E90	132502	(1.75, 1.5)
5	3X35E90	205145	(7.5,8.75)
6	3X35E90	215632	(8,7)
7	3X35E90	215362	(7.75,7)

- a) Cluster C1(1.83, 1.94): Office ; Cluster C2(7.75, 7.58): Home
- b) Cluster C1(7.75, 7.58): Home; Cluster C2(1.83, 1.94): Office
- c) Cluster C1(1.83, 1.94): Home; Cluster C2(7.75, 7.58): Office
- d) Cluster C1(1.94, 1.83): Office ; Cluster C2(7.58,7.75): Home

- a)
 b)
 c)
 d)

No, the answer is incorrect.
Score: 0
Accepted Answers:
a)

10) An ITS architecture comprises of: 1 point

- (a) Logical Architecture
- (b) Physical Architecture
- (c) Logical and Physical Architecture
- (d) None of the above

- a)
 b)
 c)
 d)

No, the answer is incorrect.
Score: 0
Accepted Answers:
c)

11) Which of these is a sub-system as per the National ITS Architecture Framework—US DoT? 1 point

- (a) Traveler support
- (b) Traffic management centre
- (c) Field equipment
- (d) All of the above

- a)
 b)
 c)
 d)

No, the answer is incorrect.
Score: 0
Accepted Answers:
d)

12) ITS interventions implemented in the Bus Transit Systems of Indore, Bhubaneswar and Mumbai, comprises of: (1) _____, Electronic ticketing system, (2) _____ and Service staff scheduling 1 point

- (a) (1) Speed/trajectory record; (2) Automatic maintenance shed
- (b) (1) Passenger information system; (2) Fuel usage monitoring
- (c) (1) Accident detection system; (2) Emergency dispatch unit
- (d) None of the above

- a)
 b)
 c)
 d)

No, the answer is incorrect.
Score: 0
Accepted Answers:
b)

13) Which of the following ITS component is the key to Electronic Toll Collection (ETC) Architecture? 1 point

- (a) Automatic Vehicle Location (AVL)
- (b) Automatic Vehicle Identification (AVI)
- (c) Automatic Vehicle Transmission (AVT)
- (d) None of the above

- a)
 b)
 c)
 d)

No, the answer is incorrect.
Score: 0
Accepted Answers:
b)

14) Name a Government of India initiative effective in the process of collecting toll amount for ETC? 1 point

- (a) FASTag
- (b) Make in India
- (c) BHIM
- (d) Swachh Bharat Abhiyan

- a)
 b)
 c)
 d)

No, the answer is incorrect.
Score: 0
Accepted Answers:
a)

15) Calculate the queuing delay time in an MTC toll plaza if the total no of toll booths are 4 on a single-lane highway. The total traffic flow on the highway is 1000 veh/hr. Assume the service rate of MTC tollbooth = 500 veh/hr. Compare the queuing delay time of a similar toll plaza upgraded with ETC and a service rate of 1000 veh/hr (round off to the nearest whole number). 1 point

- (a) MTC=14.4 s/veh & ETC=4.8 s/veh; ETC is three times faster than MTC
- (b) MTC=20.4 s/veh & ETC=4.08 s/veh; ETC is five times faster than MTC
- (c) MTC=14.4 s/veh & ETC=4.8 s/veh; ETC is three times faster than MTC
- (d) MTC=10.4 s/veh & ETC=5.2 s/veh; ETC is two times faster than MTC

- a)
 b)
 c)
 d)

No, the answer is incorrect.
Score: 0
Accepted Answers:
c)

16) A new PBS operator wants to introduce a PBS scheme in a neighbourhood of population of 1, 00,000. From the first step of the PBS demand analysis it was seen that the average trip rate of the neighbourhood was 6.5 trips/person and the following table was generated. For the purpose of the operator, it was pertinent to study the various categories of trip distance and trip cost of the neighbourhood. Generate the PBS demand of the category "Trip cost: 100 to 200 INR". 1 point

.Attributes	Categories	% Willing to shift to PBS	% of trips
Trip Distance	0 to 2 km	76%	54%
	2 to 5 km	15%	27%
	5 to 15km	9%	19%
Trip Cost	50 to 100 INR	35%	65%
	100 to 200 INR	24%	20%

- (a) 31,200
- (b) 1,47,875
- (c) 39,975
- (d) 11,115

- a)
 b)
 c)
 d)

No, the answer is incorrect.
Score: 0
Accepted Answers:
d)