Higher Technological Institute   (CT 253) Transportation Planning and Traffic Engineering   10ᵗ OF RAMADAN CITY
Civil Engineering Department   Spring (2019)
Dr. Mohamed Reda   Assignment No. (1)
                                                      Traffic Volume

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Question (1):
a) What are the objectives of traffic volume counts?
b) What are the objectives of travel time and delay studies?
c) What are the expansion factors?
d) What are the flow – density relationships according to greensheild and greenberg models (using sketches only)

Question (2):
Using the spot-speed data below, draw the histogram frequency distribution and cumulative percentage distribution for each set of data and determine: (a) average speed, (b) 85th percentile speed, (c) 15th percentile speed, (d) modal speed, (e) median, and (f) pace.

38	33	40	35	38	37	33	30	35	28	35	35	40
33	35	36	36	40	38	35	30	30	38	39	35	36
35	34	33	31	36	35	33	35	41	35 km/h			

Question (3):
The traffic volume data collected on a roadway section on a Monday of the month of Mars were:

Hour	Volume
7:00 – 8:00 am	450
8:00 – 9:00 am	565
9:00 – 10:00 am	670
10:00 – 11:00 am	640
11:00 – 12:00 noon	600

Estimate the AADT if the expansion factors determined from a similar continuous counting station are:

Hour	HEF
7:00 – 8:00 am	29.00
8:00 – 9:00 am	22.05
9:00 – 10:00 am	18.80
10:00 – 11:00 am	17.10
11:00 – 12:00 noon	18.52

Question (4):
The data shown below were obtained from a rural highway. Use regression analysis to fit these data to the Greenshields model and determine:

(a)   Mean free speed
(b)   Jam density
(c)   Capacity
(d)   Speed at maximum flow

Speed (km/h)	22.8	38.8	48.8	64.5	81.4	88.5
Density (v/km)	137	113	88	66	32	24

Using Greenshields Model: $u = a + bk$