

Dhaka Mass Transit Company Limited (DMTCL) – 2022

Post: Assistant Engineer (Civil)

Date: 23-12-2022; Friday; Time: 11:00 AM – 12:00 PM

Exam Taker: BUET

Time: 1 hour

Full Marks: 90

Non Departmental – 25

1. Passengers capacity (per hour) of MRT
2. Which type train line (gauge) use MRT
3. Achilles heel idioms and phrases means
4. Prepositions a. insists (on); b. feel (like)
6. Voice change: He acted on my advice
7. Designer of Jatio Shritishod
8. Designer of Shahabag Arts faculty
9. 1st female pilot of Bangladesh
10. from which year chayyanot celebrating bangla new year
11. Rolling stone gather no mass. Rolling ki?--participle
12. Synonym of appall.
13. Which is the oldest Dynasty? (Chandra/mourya/gupto etc. option)
14. Which is oldest site? (Sompur bihar)
15. Which geographical line is crossed over Bangladesh? Tropic of cancer
16. Official name of BD-----People's Republic of Bangladesh
17. How many Administrative divisions in BD
18. Look forward to (helping)
19. Salina (being/was/is/are) slender mastered the art
20. Make complex: He acted on my advice------(He acted as I advised him)
21. Voice change: One should keep one's promises
22. She told me her name after she-----(left /had left/ has left/ has been leaving)
- 23.
- 24.
- 25.

(বিশেষ দ্রষ্টব্যঃ অসম্পূর্ণ ও বাকি প্রশ্ন পাওয়া গেলে কমেণ্টে জানানোর অনুরোধ করছি)

Departmental – 65

1. A tank of 3×3×3 dimension having 2.5 water depth, a pipe of 1.5m length is below the tank. Flow rate through the pipe, $Q = ?$
2. Raining on a 10m×10m area and rainfall intensity is 100 mm/hr. A drain/pipe from the area having slope of 1 cm/km. What time is taken to carry/empty the rainwater?
3. What is the width of a best hydraulic section of triangular shape if flow depth is 1m?
4. Spot speed data were collected at a section of highway during and utility maintenance work. The speed characteristics are given below. Determine whether there was any significant difference between the average speed at the 95% confidence level.

Before Improvement	After Improvement
$u_1 = 35.5$ mph	$u_2 = 38.7$ mph
$S_1 = 7.5$ mph	$S_2 = 7.4$ mph
$n_1 = 250$	$n_2 = 280$

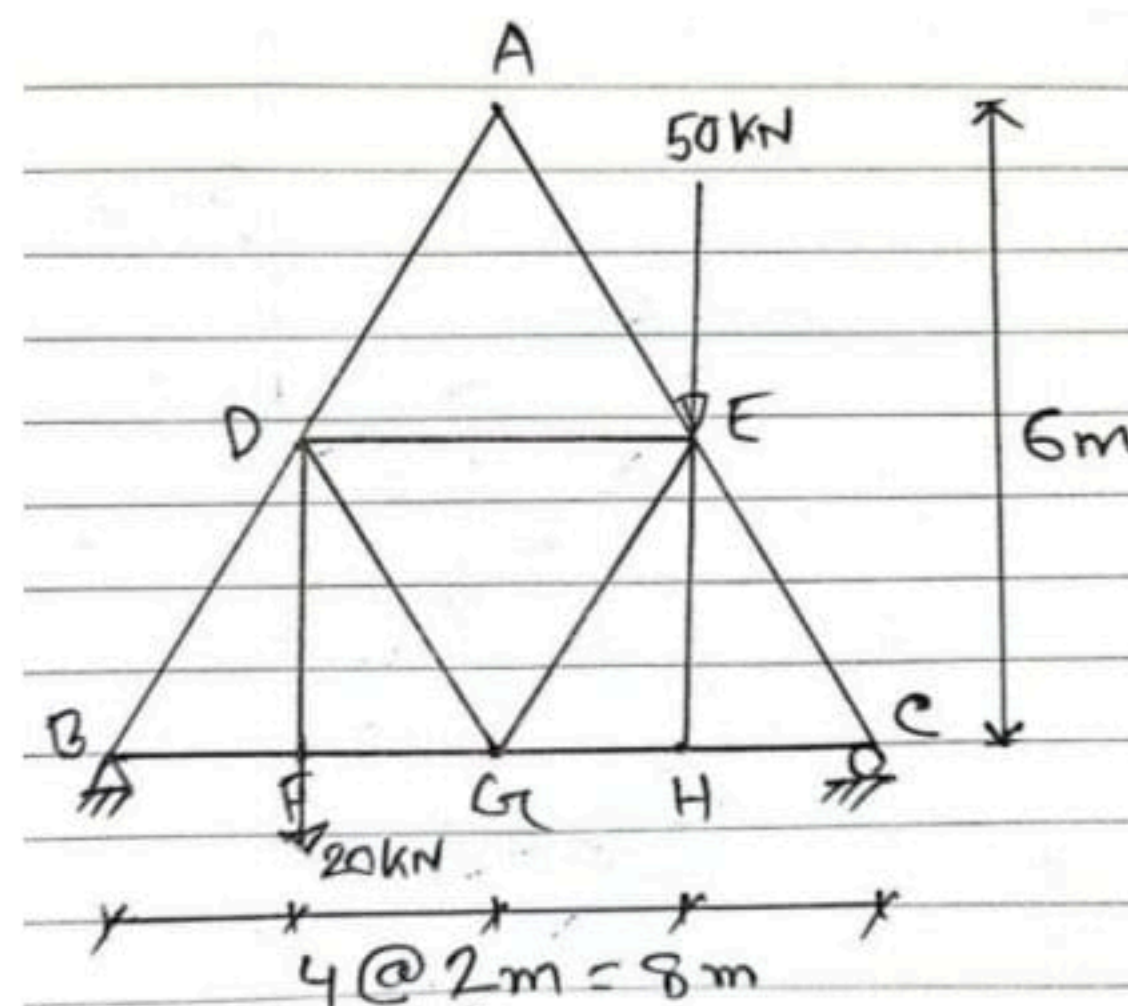
5. Logit model: The utility functions for auto and transit are as follows:

Auto: $U_A = -0.46 - 0.35T_1 - 0.08T_2 - 0.005C$

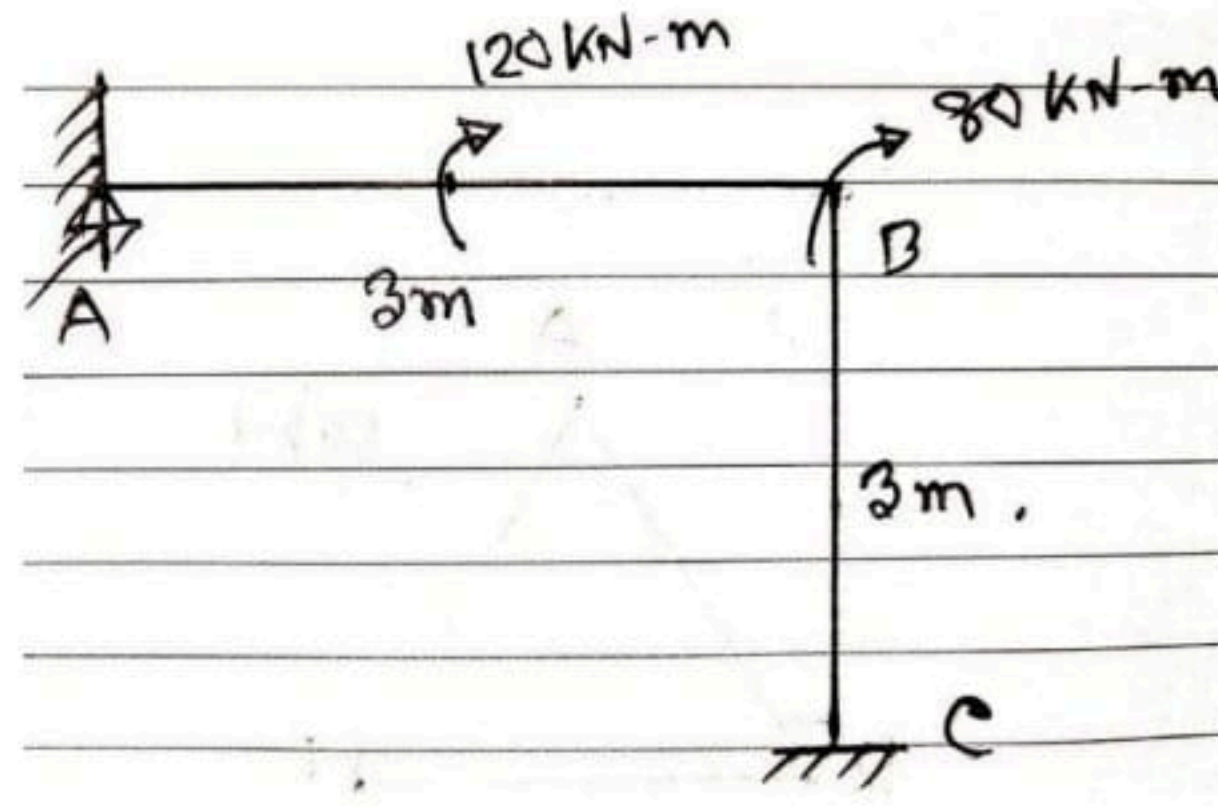
Transit: $U_T = -0.07 - 0.05T_1 - 0.15T_2 - 0.005C$; where, T_1 is total travel time in minutes; T_2 is waiting time in minutes and C is cost in cents.

	Auto	Transit
T_1	20	30
T_2	8	6
C	320	100

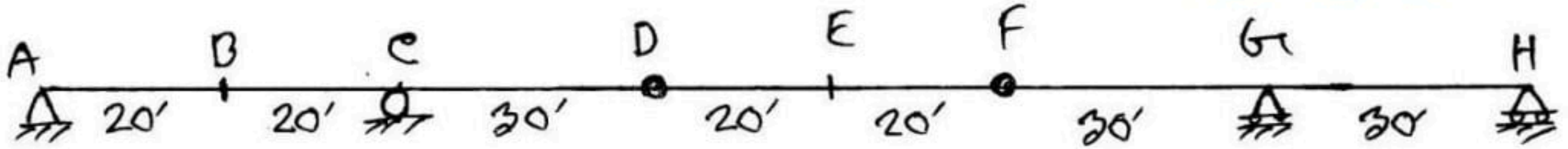
6. What are the uses of piezometer?
7. During a laboratory compression test, the void ratio of the test sample changes to 1.36 as the loading increases from 2000 psf to 4000 psf. The compression index for this loading range is 0.63. What is the initial void ratio of the test sample?
8. DO_i , DO_f and BOD_5 math.
9. The population of 2010 is 10,000 and 2020 is 19,500. If water demand is 90 lpcd, what is the water demand of 2030? If chlorine content of 0.5 mg/L is to be added in water, how much bleaching powder is required if bleaching powder contains 25% of chlorine?
10. Fill in the gaps about civil engineering topics.
11. Determine the member forces of DF and DG members following the truss.



12. Analyse the frame shown in figure by stiffness matrix.



13. Draw influence line diagram for R_A , R_C , V_B , V_E .



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