10TH 13TH OCT

EFFULGENCE '17

BEATING THE INVINCIBLES

A techno-management fest

BRIDGE IT

PROBLEM STATEMENT

Design a truss bridge using Popsicle sticks satisfying the stated constraints.

Fig.1-Malviya Bridge, inaugurated in 1887 (originally called The Dufferin Bridge) is a double decker bridge over the Ganges at Varanasi. It carries rail track on lower deck and road on the upper deck. It is one of the major bridges on the Ganges and carries Grand Trunk Road across the river.

EVENT STRUCTURE

No. of participants in a team can be 4-5

MATERIALS

Use popstical sticks provided by the Effulgence Team.
Sticks can be altered physically by cutting or notching at any angle.
Only Fevicol(MR white adhesive) can be used as adhesive, use of other adhesives will lead to disqualifications.

DIMENSION AND WEIGHT SPECIFICATION

The Spaghetti Bridge dimensions should be within the specified limits of $\pm$ 2cm:
Length = 70cm(approx)
Width = 13 cm(approx)
Height = 10 cm(approx)
The members of the bridge can be built by grouping a maximum of 8 sticks together.

Clear distance: An 8cm high by 10cm wide clearance must be provided along the entire length of the bridge.

The bridge must weigh 600 grams or less.

In case of any discrepancies, the decision taken by the judges and the Effulgence Team will be the final verdict

TESTING

Team will be given 5 minutes to make final changes in their structure before the testing, and once the changes are done, the structure will be weighed. After weighing is done no changes can be made in the structure.

The dimensions of the structure will be measured.

All construction and material requirements will be checked prior to testing. Bridges falling to meet these requirements and constraints will be disqualified or penalized accordingly.

Loading will be done using a hook at the center of the bridge. The loading would be done on the bridge using a 8cm x 10cm loading plate-connecting hook system. The plate would rest on the deck while the hook connected to the plate would go through the deck and below where it is loaded. For this the bridge . should have a 10mm diameter circular hole through the deck.(Note that the loading mechanism might change according to the circumstances during the competition but the mechanism won't affect the results. However, marking the central hole in the deck is compulsory.)

LOADING

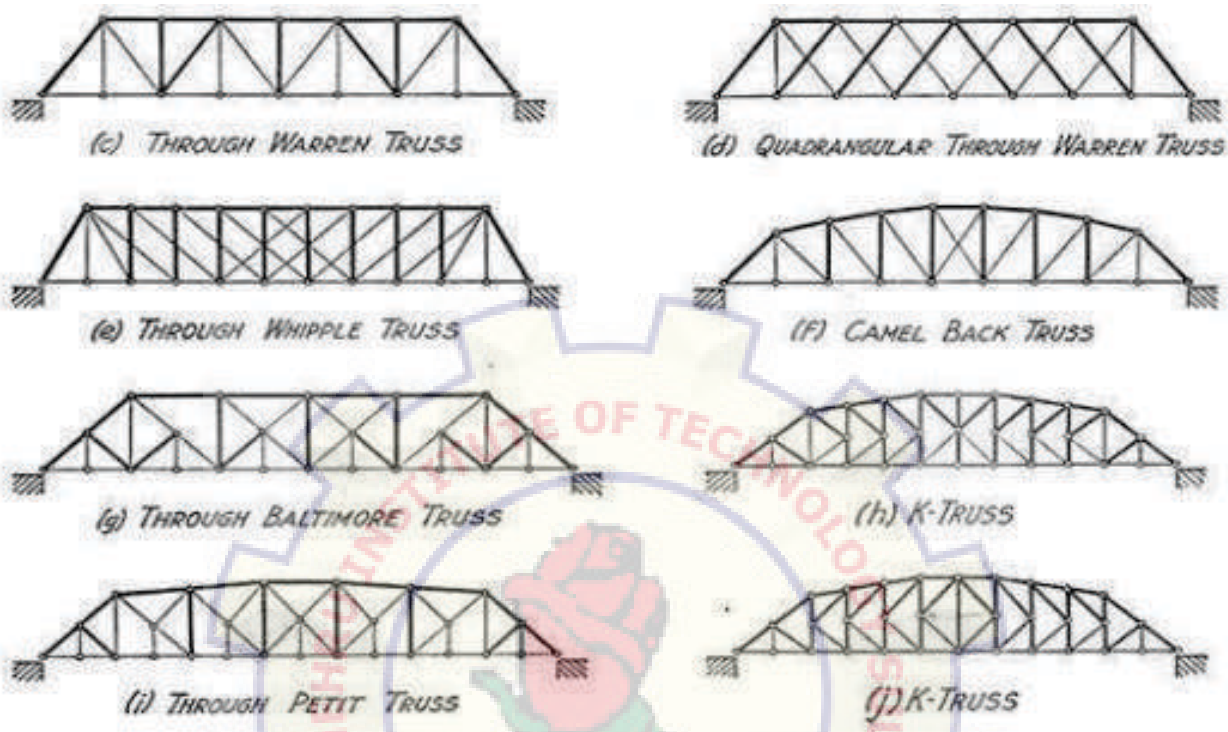

Fig 5: Examples of truss bridges

JUDGING CRITERIA

The judging is based on the following important criteria:
Dead Mass of the bridge(M) in Kg
Load carried by the structure before failure(x)
If the structure carries x Kgs of load beforefailure and has incurred a penalty of 'P' Kg, the corresponding team will beawarded the E score where Structural Efficiency E=(X-P)/M points. Bridges will be ranked according to E.

CONTACT DETAILS

Event Co-ordinators:-

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