



12TH IT SKILLS OLYMPICS

The IT Innovators' Gauntlet: Forging Ahead the Future of Technology



DIGITAL ELECTRONICS

MECHANICS:

1. All participants must attend the following contest activities:
 - o Opening Ceremony
 - o Contest Proper
 - o Awarding Ceremony
2. 1 participant per school
3. Participants registration is available until **15th of November 2023**.

QUANTITY	DESCRIPTION
5 pcs	1k ohm, 1/2 watt resistor
3 pcs	LED
2 set each	7432, 7404, 7408, TTL Logic Gate IC's
5 meters	Assorted color AWG#22/AWG#24 Solid Connecting wires cut into small lengths ready for circuit construction
9 V battery/5 V	Battery

CRITERIA

1. The participants are expected to bring ALL the materials listed above. Failure to do so will incur an additional five minutes in their Finish Time.
2. Breadboard will be used in circuit construction.
3. This contest is composed of TWO (2) CATEGORIES:
 - SIMPLIFICATION
 - CIRCUIT CONSTRUCTION

The SIMPLIFICATION CATEGORY will require the participants to SIMPLIFY THE GIVEN LOGIC DIAGRAM using ANY APPLICABLE REDUCTION TECHNIQUE, provided that the FINAL ANSWER obtained by the participant is the SIMPLEST SIMPLIFIED FORM that conforms with the ANSWER OF THE PANEL OF JUDGES.

The phrase "SIMPLEST SIMPLIFIED FORM" stipulated in the preceding guideline is based on the principle that the given original logic diagram is reduced in its simplified form with the least



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number of input variables and the least number of gates employed providing the correct same output with the given original logic diagram regardless of any reduction techniques used.

The CIRCUIT CONSTRUCTION CATEGORY will require each participant to construct the circuit on the breadboard and will commence immediately after each participant gets the SIMPLEST SIMPLIFIED FORM that conforms with the ANSWER OF THE PANEL OF JUDGES.

CIRCUIT CONSTRUCTION on the breadboard MUST USE the SIMPLEST SIMPLIFIED FORM and must provide an IDENTICAL OUTPUT with the OUTPUT OF THE GIVEN ORIGINAL LOGIC DIAGRAM.

4. The TIME INCURRED for both the simplification and circuit categories will be indicated on the ANSWER SHEET/FORMS that will be provided for each participant.
5. The FASTEST among the participants with the LEAST AMOUNT OF TOTAL TIME OF ACCOMPLISHMENT for the two categories will be considered the Champion.
6. The participants will be given IDENTICAL COPIES OF IC's PIN ASSIGNMENTS and LOGIC DIAGRAM.

In case of a TIE FOR A PARTICULAR PLACE OF WINNERS, a TIE-BREAKER LOGIC DIAGRAM shall be given TO THOSE PARTICIPANTS, and all stipulations in this guideline are applicable to determine the winner for that particular place.

