

ISLAMIC UNIVERSITY OF TECHNOLOGY (IUT)  
ORGANISATION OF ISLAMIC COOPERATION (OIC)

DEPARTMENT OF ELECTRICAL AND ELECTRONIC ENGINEERING

Mid-Semester Examination

Winter Semester, A. Y. 2024-2025

Course No.: EEE 4101

Time: 2 Hours

Course Title: Electrical Circuit I

Full Marks: 120

There are 4 (four) questions. Answer **all** the questions. Marks of each question and corresponding COs are written in the brackets. Assume any data if necessary.

- 1.a) Find the voltage  $V_o$  in the following circuit in Fig. 1(a) and prove Tellegen's theorem for the following network. (18)  
(CO1)

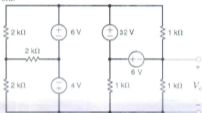


Fig. 1(a)

- b) The charge that enters the BOX in Fig. 1(b) is shown in the graph below. Calculate and sketch the current flowing into and the power absorbed by the BOX between 0 and 10 milliseconds. (12)  
(CO1)

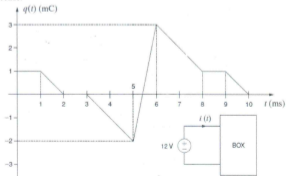


Fig. 1(b)