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**SET: A**

**AMERICAN INTERNATIONAL UNIVERSITY – BANGLADESH (AIUB)**

**Faculty of Engineering**

**Bachelor of Science in Electrical and Electronic Engineering/Computer Engineering/Computer Science & Engineering**

**EEE2109Introduction to Electrical Circuits (Section: E)**

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| **MidtermAssessment Spring2019-20 Total Marks: 20 Time: 30 minutes**  **Student Name:ANKON SARKER LINKON ID:19-40895-2** |
| **Course Instructors**:Ms. NuzatNuaryAlam |

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| 1. | (a) | For the circuit given in the Figure 1(a), calculate the total resistance (RT), series current (IS), and power dissipated by R3. | [**3**] |
|  | (b) | For the circuit given in the Figure 2(a), Calculate the total resistance (RT), total current (IS), branch currents and prove KCL. | [**3**] |
|  | (c) | What is the total cost of using following appliances at 14.44 taka per kilowatthour?   1. A 1400 watt washing machine for 45minutes. 2. Six 120V, 75mA light bulb for 12 hours. | [**3**] |
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| 2. | (a) | (i) Write the mathematical expression of 𝑣𝐶 and 𝑖𝐶 if the capacitor of Fig. 2(a) is initially uncharged and is thrown into position 1 at t = 0 second.  (ii) Write the mathematical expression of 𝑣𝐶 and 𝑖𝐶 if the switch is thrown into position 2 after 5 time constant of charging period.  (iii) Plot 𝑣𝐶 and 𝑖𝐶 to show the complete transient behavior of the capacitor. | [**5**] |
|  | (b)  1(a) | For the circuit given in Fig. 2(b), calculate voltage V2Ω across 2Ω resistor using either nodal or mesh analysis  1(b) |  |



2(a)

2(b)

**Necessary Equations:**

1. 2. 3. 4.

5. 6. 7. 8. 9.

10. 16. 



