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***Electronics and Communications Department***

***Analog Electronics***

**Lab 4 Notes**

**Direct Coupling**

|  |  |
| --- | --- |
| **Name** | **عبدالرحمن علي موسى** |
| **Section** | **4** |
| **Date** | **2/5/2023** |

* **Part I**
* **The figure of the circuit below shows that.**
* **At = 1.5V**

= 12.8V , = 3.42V

= 0.85V , = 1.56V

= 2.23V , = 11.6V

Diagram, schematic

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* **Calculate the overall voltage gain**,  **=**
* **At = 1.4V**  **= 8.7V**
* **At = 1.6V = 14.1V**

**= = 27 V/V**

* **The figure below shows the circuit after connecting 10KΩ load.**

Diagram, schematic

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* **Calculate the overall voltage gain**,  **=**
* **At = 1.4V**  **= 7.14V**
* **At = 1.6V = 11.5V**

**= = 21.8 V/V**

* **part II**
* **The figure below shows the circuit after changing the NPN transistor (Q2) to PNP transistor** **and the DC voltages at each node.**

Diagram, schematic

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* **Calculate the overall voltage gain**,  **=**
* **At = 1.4V**  **= 4.79V**
* **At = 1.6V = 4.45V**

**= = -0.2 V/V**