INDIAN INSTITUTE OF TECHNOLOGY DHARWAD
Dharwad, 580 011

Wednesday 18th Nov. 2021	**EE 202: Introduction to Analog Circuits** Endsem - Part B	Time: 0945 to 1025 Marks: 20

Make suitable assumptions where you deem necessary and state them in the answerbook.

Write the question number clearly before every answer and show the intermediate steps to demonstrate your thought process.

Write page numbers on all your answer sheets.

You should stop writing at 1015. Take pictures of your answer sheet with the page numbers visible and submit it on Moodle before 1025 Hrs. Your submission could be a zip file of all images or a single PDF file. Please note that Moodle submission link will automatically get disabled at 1025. I will not accept any email submissions.

Please double check if you have uploaded the correct file for your submission.

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1. Using an Opamp, design an AC coupled amlpifier with a gain of -XY where XY are the last two digits of your roll number. Design the input network so that it rejects all frequencies below 150 Hz. [6]

2. Draw the circuit of a source follower amplifier. Show its small signal equivalent circuit and find an expression for its small signal gain. Can you comment on the output impedance of this amplifier? [6]

3. Figure shows the circuit of a simple differential amplifier. Find an expression for the gain of the circuit for differential and common mode inputs. C_S is a large capacitance. [8]

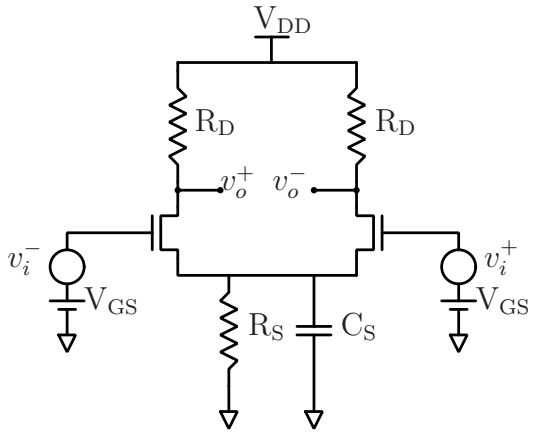

Figure 1: Circuit for Question 3

(a) What is the effect of C_S on the common mode rejection ratio? [3]