INDIAN INSTITUTE OF TECHNOLOGY DHARWAD
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Monday 18th Oct. 2021	**EE 202: Introduction to Analog Circuits** Quiz 1 - Part A	Time: 1800 to 1830 Marks: 20

Unless specified otherwise, use the opamp parameters of μA741 opamp, the datasheet of which is sent to you along with the paper in your email.

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.

Wrong answers will fetch NEGATIVE MARKS of up to -50%. (For example, if 2 marks are awarded for a correct answer, a wrong answer will fetch -1.

Write page numbers on all your answer sheets.

You should stop writing at 1820. Take pictures of your answer sheet with the page numbers visible and submit it on Moodle before 1830 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 1830. I will not accept any email submissions.

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1. Explain the parameter Common Mode Rejection Ratio (CMRR) of an Opamp. Why is this parameter important? [5]

2. An opamp (μA741) is used to amplify a sinusoidal input of 1 KHz. Calculate the maximum amplitude of the output that can be generated without distortion due to slew rate. Now if the frequency of the input is reduced to 200 Hz, will the maximum amplitude change? If yes calculate the new value and explain the reasons for the change. If no, quantitavely establish that the maximum amplitude will remain unchanged with necessary justifications. [10]

3. A typical negative feedback loop comprises of an integrator in the forward path. This means that if we apply a DC input and disconnect the feedback, the output will grow linearly forever (reaching infinity eventually). Does this happen in practical opamps? Explain what limits the output of a practical opamp. [5]