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EDUCATION

NATIONAL
SENIOR CERTIFICATE

GRADE 10

LIFE SCIENCES PAPER 2

NOVEMBER 2024

MARKING GUIDELINE

MARKS: 150

TIME: 2 ½ HOURS

This question marking guideline consists of 12 pages including the cover page

Limpopodoe November 2013 Lfsc Pmemo

Guillaume Favre



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the four quadrant chopper block represents a four quadrant controlled chopper for converting a fixed dc input to a variable dc output the block contains two bridge arms each bridge arm each has two switching devices options for the type of

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3 four quadrant operation of dc motor four quadrant operation or mode of any dc motor means that machine operate in four quadrants they are forward breaking mode forward motoring mode reverse breaking or stop mode and reverse motoring mode a motor operates in two modes motoring and breaking a motor drive capable of

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aug 8 2020 1 answer sorted by 1 you can think of the first quadrant operation as being a buck converter down from the supply to the motor you can think of the second quadrant as being a boost converter from the motor s generated low voltage up to the supply voltage

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put simply the four quadrants that the controller can work in are 1 motor going clockwise controller applying clockwise drive 2 motor going anti clockwise controller applying anti clockwise drive 3 motor going clockwise controller applying anti clockwise drive 4 motor going anti clockwise controller applying clockwise drive

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1 to observe the four quadrant operation of a dc motor 2 to control a motor under torque control 3 to couple the speed control motor and torque controlled motor and observe the effect of a stepped torque 6 2 four quadrant operation of a dc motor the four quadrant operation is performed by giving an alternating reference speed command to

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aug 16 2021 the four quadrant operation of the motor can be described as follows quadrant i in the first quadrant the developed power by the motor is positive thus the motor operates in motoring mode and converts electrical energy into mechanical energy therefore the operation of the motor in first quadrant is called forward motoring quadrant ii

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the control of bldc motor in four quadrants is very crucial in this paper bldc motor is controlled in all the four quadrants without any wastage of power during regenerative braking period power generated is being stored in the chargeable battery

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aug 3 2019 introduction in this experiment four quadrant operation of a dc motor is simulated as well as run in real time the speed and current control model developed in the previous experiment is used to emulate the four regions of operation theoretical background consider an elevator system shown in figure below

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