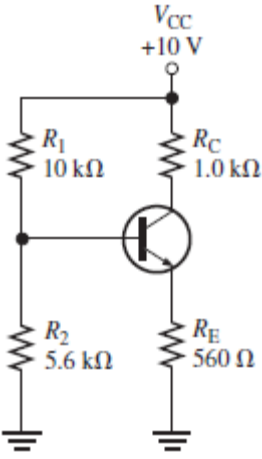


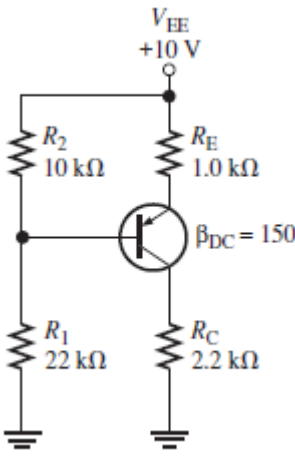
# Electronic Circuits II - Assignment 01

1	DC bias establishes the dc operating point for an amplifier.	
2	Q-point is the quadratic point in a bias circuit.	
3	The dc load line intersects the horizontal axis of a transistor characteristic curve at $V_{CE} = V_{CC}$ .	
4	The dc load line intersects the vertical axis of a transistor characteristic curve at $I_C = 0$ .	

MCQ

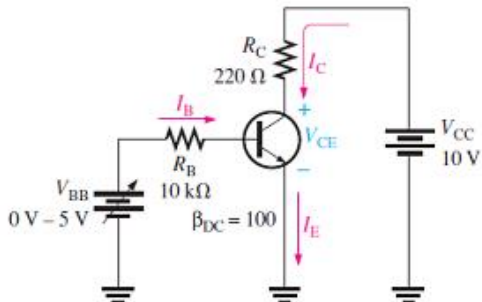
#	Question	
1	<p>If the value of <math>R_1</math> in Figure is increased, the emitter current will</p>  <p>(a) increase (b) decrease (c) not change</p>	



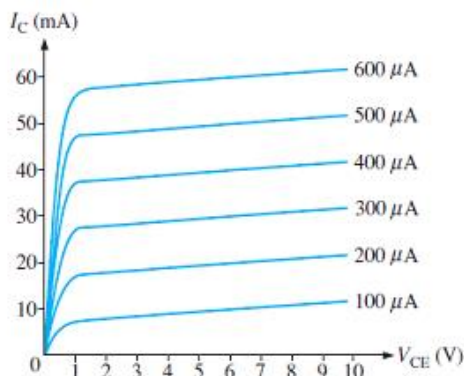
2	<p>If <math>R_E</math> in Figure is decreased, the collector current will</p>  <p>(a) increase (b) decrease (c) not change</p>	
3	<p>Ideally, a dc load line is a straight line drawn on the collector characteristic curves between</p> <p>(a) the Q-point and cutoff      (b) the Q-point and saturation (c) <math>V_{CE(cutoff)}</math> and <math>I_{C(sat)}</math>      (d) <math>I_B = 0</math> and <math>I_B = I_C/\beta_{DC}</math></p>	
4	<p>The input resistance at the base of a biased transistor depends mainly on</p> <p>(a) <math>\beta_{DC}</math>      (b) <math>R_B</math>      (c) <math>R_E</math>      (d) <math>\beta_{DC}</math> and <math>R_E</math></p>	
5	<p>In a certain voltage-divider biased <i>npn</i> transistor, <math>V_B</math> is 2.95 V. The dc emitter voltage is approximately</p> <p>(a) 2.25 V      (b) 2.95 V      (c) 3.65 V      (d) 0.7 V</p>	



Q1



(a) DC biased circuit



(b) Collector characteristic curves

What is the Q-point for a biased transistor as in Figure with  $I_B = 150 \mu A$ ,  $\beta_{DC} = 75$ ,  $V_{CC} = 18 V$ , and  $R_C = 1.0 k\Omega$ ?

with  $I_B = 150 \mu A$ ,  $\beta_{DC} = 75$ ,

What is the saturation value of collector current

?

What is the cutoff value of  $V_{CE}$

Sol  
1

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....



كلية الهندسة

Faculty of Engineering

FACULTY OF ENGINEERING  
AHRAM CANADIAN UNIVERSITY



جامعة الأهرام الكندية  
AHRAM CANADIAN UNIVERSITY

A large rectangular area with a dotted horizontal line for writing.





كلية الهندسة

Faculty of Engineering

FACULTY OF ENGINEERING  
AHRAM CANADIAN UNIVERSITY



جامعة الأهرام الكندية  
AHRAM CANADIAN UNIVERSITY

A large rectangular area with a dotted grid pattern, intended for writing or drawing.







كلية الهندسة

Faculty of Engineering

FACULTY OF ENGINEERING  
AHRAM CANADIAN UNIVERSITY



جامعة الأهرام الكندية  
AHRAM CANADIAN UNIVERSITY

A large rectangular area with a vertical margin on the left and horizontal dotted lines for writing.



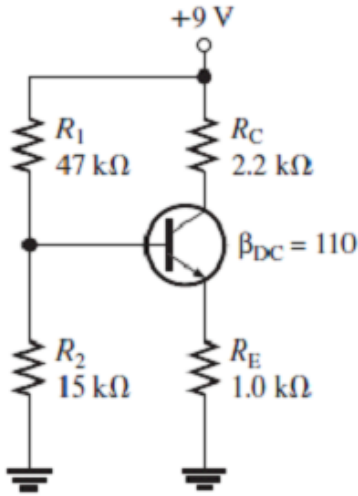








Q6



Determine all transistor terminal voltages with respect to ground in Figure

Sol  
6

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....



كلية الهندسة

Faculty of Engineering

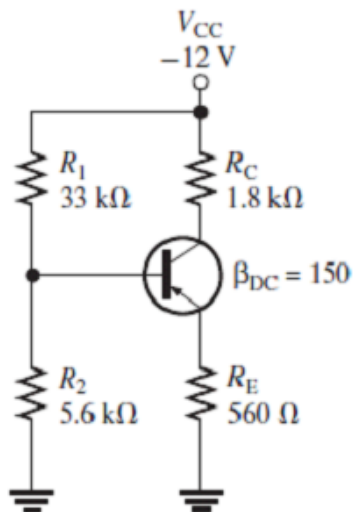
FACULTY OF ENGINEERING  
AHRAM CANADIAN UNIVERSITY



جامعة الأهرام الكندية  
AHRAM CANADIAN UNIVERSITY

A large rectangular area with a vertical margin on the left and horizontal dotted lines for writing.

Q7



(a) Determine  $V_B$  in Figure

(b) How is  $V_B$  affected if the transistor is replaced by one with a  $\beta_{DC}$  of 50?

Sol  
 7

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....





كلية الهندسة

Faculty of Engineering

FACULTY OF ENGINEERING  
AHRAM CANADIAN UNIVERSITY



جامعة أهرام كندا  
AHRAM CANADIAN UNIVERSITY

A large rectangular area with a vertical margin on the left and horizontal dotted lines for writing, intended for student answers.