

مدرسین شریف



Contents

Title	Page number
CHAPTER ONE: ((Electronic))	
Capacitor	1
Series and parallel circuits	1
Diode	2
Semiconductor diodes	3
Current-voltage characteristic	3
Shockley diode equation	5
Small- signal behaviour	6
Types of semiconductor diode	7
Avalanche diodes	7
Cat's whisker or crystal diodes	8
Constant current diodes	8
Esaki or tunnel diodes	8
Gunn diodes	8
Light-emitting diodes (LEDs)	9
Laser diodes	9
Peltier diodes	9
Photodiodes	9
Point-contact diodes	10
Varicap or varactor diodes	10
Zener diodes	10
Transistor	11
Electronic circuit	11
Analog circuits	12
Digital circuits	13
Mixed-signal circuits	13
Definitions	14
Vocabulary	16
Progress check	18
Answers	27
CHAPTER TWO: ((Power systems))	
Underground Distribution	36
Applications	36
Underground Residential Distribution (URD)	37
Main Feeders	39
Cables	40
Cable Insulation	40

مدرسان شریف



Contents

Title	Page number
Definitions	41
Vocabulary	42
Progress check	43
Answers	49
CHAPTER THREE: ((Machines))	
Why electric machines continue to naturally grow?	55
Status of electric motors	58
Definitions	63
Vocabulary	65
Progress check	66
Answers	69
CHAPTER FOUR: ((Telecommunication))	
Telecommunication	73
The telegraph and the telephone	74
Radio and television	74
Computer networks and the Internet	75
Key concepts	76
Communications networks	77
Communication channels	77
Modulation	77
Society and telecommunication	78
Economic impact	78
Modern operation	79
Radio and television	80
The Internet	81
Definitions	82
Vocabulary	87
Progress check	88
Answers	93
CHAPTER FIVE: ((Control Systems))	
Control systems	98
Overview	98
Control theory	99
Applications Control systems	99
Control engineering education	100
Recent advancement	101
Digital of controller Implementation	102

مدرسان شریف



Contents

Title	Page number
Output Program	102
Stability	102
Definitions	103
Vocabulary	104
Progress check	105
Answers	106
CHAPTER SIX: ((Biomedical engineering))	
Biomedical engineering	108
Biotechnology and pharmaceuticals	109
Tissue engineering	110
Genetic Engineering	110
Neural Engineering	110
Pharmaceutical engineering	110
Medical devices	111
Medical imaging	112
Implants	112
Clinical engineering	112
Definition	113
Vocabulary	114
Progress check	115
Answers	118
CHAPTER SEVEN: ((Reading Comprehension))	
تشخیص الگوهای پاراگراف هنگام خواندن	126
مهندسی برق	129
Progress check	135
Answers	136
Self-evaluation	137
Public University 1402.....	147
پاسخنامه آزمون کارشناسی ارشد ۱۴۰۲	150
Public University 1403.....	153
پاسخنامه آزمون کارشناسی ارشد ۱۴۰۳	155
References	158