Test Bank for Nutrition for Sport and Exercise 4th Edition by Dunford

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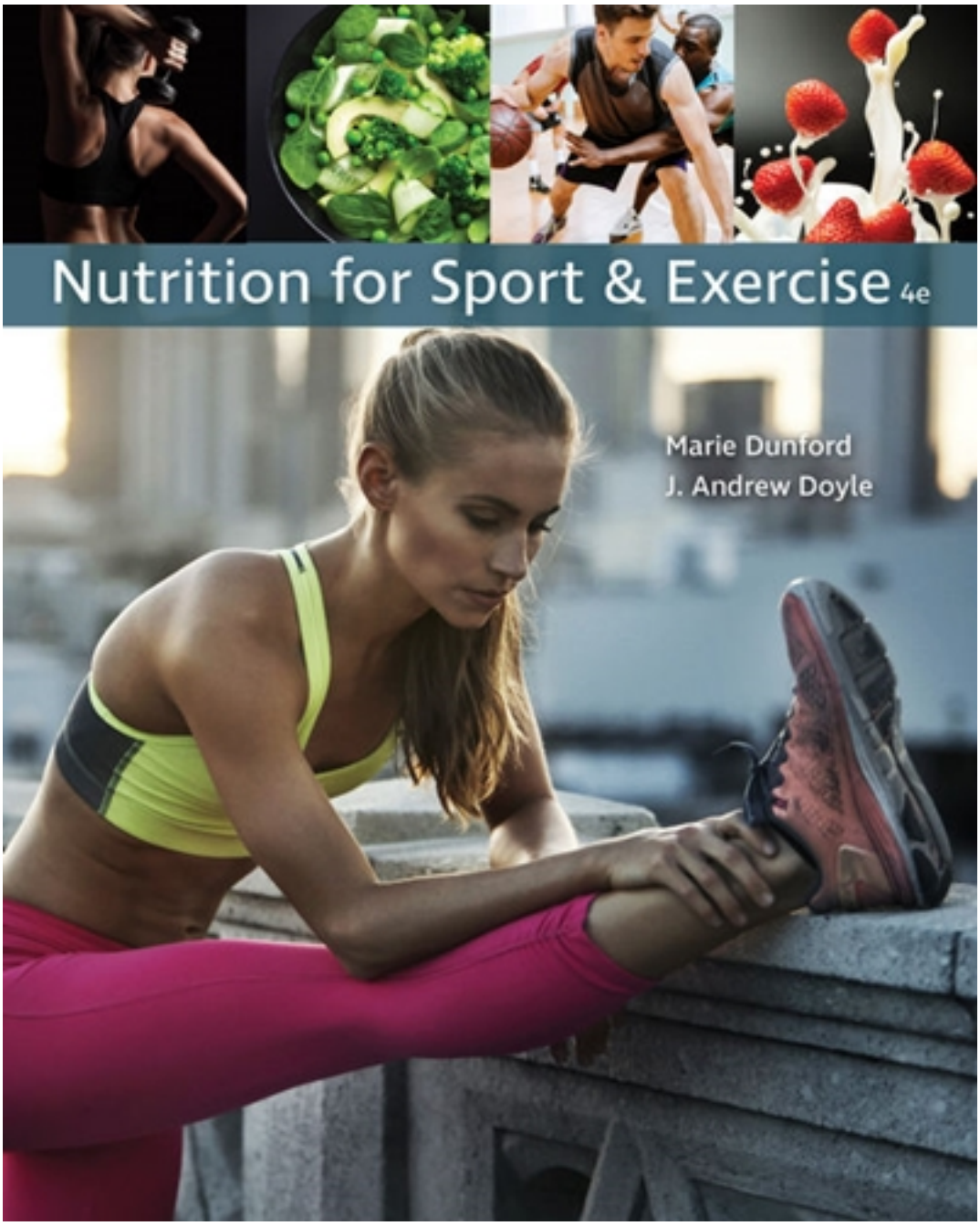

Test Bank

TRUE/FALSE

1 : The law of conservation of energy states, Within a closed system, energy is neither created nor destroyed.
A : true
B : false

Correct Answer : A

2 : When compared to machines, humans are less efficient at converting energy.
A : true
B : false

Correct Answer : A

3 : Reactions and processes that release energy are referred to as endergonic reactions.
A : true
B : false

Correct Answer : B

4 : ATP is critical for muscle contraction, but it is not involved in skeletal muscle relaxation.
A : true
B : false

Correct Answer : B

5 : ATP is known as the common energy currency because it is the source of energy that is common to all cells in the body.
A : true
B : false

Correct Answer : A

6 : ATP is composed of adenosine with two phosphate groups attached.
A : true
B : false

Correct Answer : B

7 : The response of ATP concentration in the muscle to exercise reveals a relatively large proportion of the ATP stored in the muscle is not able to be used for force production, even during very high-intensity exercise.
A : true
B : false

Correct Answer : A

8 : The three energy systems that replenish ATP are creatine phosphate, aerobic glycolysis, and oxidative dephosphorylation.
A : true
B : false

Correct Answer : B

9 : Bioenergetics is the process of converting food into biologically useful forms of energy.
A : true
B : false

Correct Answer : A

10 : Most scientific journals require that energy be expressed as an SI unit, which is the kilocalorie.
A : true
B : false

Correct Answer : B

11 : The caloric content of an individual food, a combination of foods in a meal, or the total amount of food consumed in a day can only be estimated.
A : true
B : false

Correct Answer : A

12 : As the body utilizes the potential energy contained in food, a large portion of that energy is converted to heat energy.
A : true
B : false

Correct Answer : A

13 : Rephosphorylation is the process of reestablishing a chemical phosphate bond, as in ADP reestablishing a third phosphate bond to become ATP.
A : true
B : false

Correct Answer : A

14 : The energy content of carbohydrates and proteins is estimated to be 9 kcal/g.
A : true
B : false

Correct Answer : B

15 : To obtain the most accurate measure of resting metabolic rate in healthy adults, before beginning an indirect calorimetry procedure, the subject should abstain from moderate aerobic or anaerobic exercise for at least 8 hours
A : true
B : false

Correct Answer : B

16 : The greatest source of error when using a food diary is the accurate recording of both the types and amounts of foods and beverages consumed.

A : true
B : false

Correct Answer : A

17 : Studies that compare reported energy intake with actual energy expenditure suggest that individuals, including athletes, underestimate their energy intake by approximately 15 percent and some as high as 20 percent.
A : true
B : false

Correct Answer : A

18 : Resting energy expenditure is synonymous with basal metabolic rate.
A : true
B : false

Correct Answer : B

19 : The TEF is typically calculated by multiplying daily caloric intake by 10 percent.
A : true
B : false

Correct Answer : A

20 : Basal metabolic rate and resting metabolic rate are typically the same.
A : true
B : false

Correct Answer : B

21 : Very low calorie starvation diets result in a reduced resting metabolic rate and can actually impede weight loss.
A : true
B : false

Correct Answer : A

22 : In studies of normal-weight men who were starved and then refed, the effects of starvation on RMR persisted even after the starvation was no longer present.
A : true
B : false

Correct Answer : A

23 : Studies have shown that people with more fat-free mass (measured in kg) have higher resting metabolic rates than those with less fat-free mass.
A : true
B : false

Correct Answer : A

24 : When thyroid hormones are elevated above normal concentrations, RMR is abnormally low.

A : true
B : false

Correct Answer : B

25 : Those who work with athletes, particularly endurance athletes, should use the Cunningham equation to predict RMR because it may better account for the higher amount of lean body mass in trained athletes.
A : true
B : false

Correct Answer : A

26 : A simple and commonly used estimate of resting energy expenditure is 1 kcal per kilogram body weight per hour for both men and women.
A : true
B : false

Correct Answer : B

27 : Total energy expenditure is broken down into two componentsresting metabolism and physical activity.
A : true
B : false

Correct Answer : B

28 : Many charts that list the energy expended through activity or exercise include RMR.
A : true
B : false

Correct Answer : A

29 : Standardized heart rates can be used accurately to predict energy expenditure.
A : true
B : false

Correct Answer : B

30 : It is estimated that sedentary people use about 30 kilocalories of energy per kilogram body weight daily.
A : true
B : false

Correct Answer : A

MULTIPLE CHOICE

31 : What is bioenergetics?
A : The study of metabolism
B : The physiological processes associated with exercise

C : The process of converting food into biologically useful forms of energy
D : The transformation of energy to heat

Correct Answer : C

32 : Energy is the _____.
A : absence of physical or mental fatigue
B : ability to perform work
C : generation of tension by contracting muscle
D : thermic effect of movement

Correct Answer : B

33 : The storage of carbohydrates by forming glycogen for later use is an example of _____ work.
A : chemical
B : electrical
C : mechanical
D : transportation

Correct Answer : A

34 : The maintenance of the distribution of ions across cell membranes is an example of _____ work.
A : chemical
B : electrical
C : mechanical
D : transportation

Correct Answer : B

35 : The generation of tension by contracting muscle is known as _____.
A : bioenergetics
B : force production
C : potential energy
D : kinetic energy

Correct Answer : B

36 : The First Law of Thermodynamics states that energy is _____.
A : neither created nor destroyed
B : created but not destroyed
C : destroyed but not created
D : both created and destroyed

Correct Answer : A

37 : As stored energy is released to perform some type of work, it is referred to as _____.
A : potential energy
B : electrical work
C : force production
D : kinetic energy

Correct Answer : D

38 : What are chemical reactions that store energy?
A : Endergonic
B : Exergonic
C : Endothermic
D : Excitation

Correct Answer : A

39 : What are chemical reactions that release energy?
A : Endergonic
B : Exergonic
C : Endothermic
D : Excitation

Correct Answer : B

40 : An endergonic reaction is the _____.
A : triggering of a mouse trap
B : release of water from behind a dam
C : breakdown of ATP to ADP
D : rephosphorylation of ATP from ADP

Correct Answer : D

41 : The thin contractile protein of a muscle cell is known as _____.
A : actin
B : myosin
C : troponin
D : tropomyosin

Correct Answer : A

42 : Which of the following is a high-energy phosphate compound that can store energy in its phosphate bonds?
A : ATP
B : ADP
C : PDA
D : TAP

Correct Answer : A

43 : During a muscle contraction, what happens immediately after calcium binds to troponin?
A : Myosin detaches from actin.
B : Troponin pushes tropomyosin away, exposing binding sites on actin.
C : Across bridge is formed.
D : The power stroke occurs.

Correct Answer : B

44 : When burned completely in a bomb calorimeter, protein foods yield, on average, _____ kcal/g.

A : 4.2
B : 5.7
C : 7
D : 9.4

Correct Answer : B

45 : When proteins are metabolized in the body, the average caloric value is estimated to be _____ kcal/g.
A : 4.2
B : 5.7
C : 7.0
D : 9.4

Correct Answer : A

46 : The two most common factors that influence enzymatic activity are _____.
A : time and temperature
B : temperature and pH
C : pH and oxygen availability
D : oxygen availability and time

Correct Answer : B

47 : Under the most demanding conditions (e.g., very high-intensity exercise), ATP concentrations in exercising skeletal muscles rarely drop more than _____ percent.
A : 5 to 10
B : 10 to 20
C : 20 to 30
D : 40 to 50

Correct Answer : C

48 : What are the three energy systems that replenish ATP?
A : Aerobic glycolysis, adenosine triphosphate, oxidative phosphorylation
B : Anaerobic glycolysis, gluconeogenesis, oxidative phosphorylation
C : Creatine phosphate, anaerobic glycolysis, oxidative phosphorylation
D : Carbohydrates, lipids, protein

Correct Answer : C

49 : What is a calorie?
A : the amount of water required to raise the temperature 1°C
B : a unit of expression of energy equal to 1,000 joules
C : a unit of expression of energy equal to 1,000 kilocalories
D : the amount of heat energy required to raise the temperature of 1 gram of water by 1°C

Correct Answer : D

50 : 6,300 kJ = _____ kilocalories.
A : 630
B : 850
C : 1,500

D : 3,200

Correct Answer : C

51 : The energy content of _____ is estimated to be the same kcal/g.
A : fats and proteins
B : alcohol and fats
C : carbohydrates and proteins
D : carbohydrates and fats

Correct Answer : C

52 : On average, 1 liter of oxygen consumed is equivalent to _____ kcal of energy expended.
A : 1
B : 3
C : 5
D : 7

Correct Answer : C

53 : Direct calorimetry works based on the principle that _____.
A : a rise in body temperature reflects the amount of energy expended
B : the amount of heat produced is proportional to the energy expended
C : oxygen consumption and carbon dioxide production are related to energy expenditure
D : energy expenditure can be predicted if respiration and perspiration are carefully measured

Correct Answer : B

54 : Indirect calorimetry works based on the principle that _____.
A : a rise in body temperature reflects the amount of energy expended
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C : oxygen consumption and carbon dioxide production are related to energy expenditure
D : energy expenditure can be predicted if respiration and perspiration are carefully measured

Correct Answer : C

55 : The size and complexity of which device makes them unsuitable for measuring energy expenditure for short time intervals, particularly less than 30 minutes?
A : Room-size calorimeters
B : Metabolic cart
C : Simplified portable system
D : Doubly labeled water (DLW)

Correct Answer : A

56 : What is the amount of energy per unit time required by the body to maintain a nonactive but alert state?
A : BMR
B : Resting oxygen consumption
C : TEE
D : RMR

Correct Answer : D

57 : The measurement technique DLW uses _____ to determine energy expenditure.
A : a cycle ergometer
B : direct calorimetry
C : radioactively labeled hydrogen and oxygen
D : a treadmill

Correct Answer : C

58 : In the energy balance equation, the only component of energy in is _____.
A : food
B : thermic effect of food
C : basal metabolism
D : physical activity

Correct Answer : A

59 : For a sedentary individual, _____ typically makes up the largest portion of the days total energy expenditure.
A : resting metabolism
B : thermic effect of food
C : physical activity
D : basal metabolic rate

Correct Answer : A

60 : What contributes the smallest amount of energy expended over a 24-hour period?
A : Resting metabolism
B : Thermic effect of food
C : Physical activity
D : Basal metabolic rate

Correct Answer : B

61 : The minimal energy expenditure compatible with life is _____.
A : resting metabolism
B : basal metabolism
C : thermic effect of energy
D : resting exchange ratio

Correct Answer : B

62 : When compared to basal metabolic rate, resting metabolic rate is about _____.
A : 20 percent lower
B : 10 percent lower
C : 10 percent greater
D : 20 percent greater

Correct Answer : C

63 : Which is a major source of error in reporting food and beverage intake?
A : Meal timing
B : Portion size

C : Food quality
D : Food processing

Correct Answer : B

64 : Which equation used to predict resting metabolic rate may better account for the higher amount of lean body mass in trained athletes?
A : Harris-Benedict
B : Mifflin-St Jeor
C : Owen
D : Cunningham

Correct Answer : D

65 : Estimate the resting metabolic rate of a 165-lb (75-kg) male using the Simplified Resting Metabolic Rate Formula.
A : 1,620 kcal/day
B : 1,800 kcal/day
C : 2,275 kcal/day
D : 3,650 kcal/day

Correct Answer : B

66 : Using the Cunningham Equation estimate the resting metabolic rate of a 25-year-old female endurance athlete who is 5¢8² and weighs 145 lb. At 20 percent body fat, she has approximately 52.7 kg of fat-free mass.
A : 1,223.4 kcal/day
B : 1,355.6 kcal/day
C : 1,575.9 kcal/day
D : 1,659.4 kcal/day

Correct Answer : D

67 : Which macronutrient has the greatest effect on the thermic effect of food?
A : Carbohydrates
B : Proteins
C : Fats
D : Alcohol

Correct Answer : B

68 : Of the three constituents of total energy expenditure, the one that can be influenced most readily and to the largest extent by the individual is _____.
A : resting metabolism rate
B : thermic effect of food
C : physical activity
D : food

Correct Answer : C

69 : Which statement is true when people are asked to keep a food diary?
A : Many people record water consumption in their food diaries.
B : Athletes may consciously or unconsciously undereat.

C : Many people record snacks in their food diaries.
D : Food intake is underreported by females but not males.

Correct Answer : B

70 : One MET is equal to _____.
A : the energy expenditure of an average resting metabolic rate
B : energy expenditure during the first 10 minutes of exercise
C : energy expenditure just prior to the point of fatigue
D : 55 kcal/hour

Correct Answer : A

71 : It is estimated that sedentary people use about _____ kilocalories of energy per kilogram body weight daily.
A : 20
B : 25
C : 30
D : 35

Correct Answer : C

72 : Those who are _____ active need over 50 kcal/kg/day.
A : lightly
B : moderately
C : heavily
D : exceptionally

Correct Answer : D

73 : It is estimated that about _____ of adults who record food intake underreport it.
A : one-fourth
B : one-third
C : half
D : two-thirds

Correct Answer : B

74 : The metabolic rate of females is _____.
A : more than that of males by about 100 kcal/day
B : less than that of males by about 100 kcal/day
C : more than that of males by about 250 kcal/day
D : less than that of males by about 250 kcal/day

Correct Answer : B

75 : It has long been known that a starvation state can reduce resting metabolic rate by _____ percent or more.
A : 20
B : 30
C : 40
D : 50

Correct Answer : A

76 : Which factor increases resting metabolic rate by an estimated 15 to 25 percent?
A : Cigarette smoking
B : Caffeine
C : Environmental temperature
D : Ascending to high altitudes

Correct Answer : D

77 : If _____ is estimated, it is typically calculated by multiplying daily caloric intake by 10 percent.
A : RMR
B : TEF
C : BMR
D : TEE

Correct Answer : B

78 : Physical activity may comprise only approximately _____ percent of the sedentary persons daily energy expenditure.
A : 5
B : 10
C : 15
D : 20

Correct Answer : D

79 : The Compendium of Physical Activities expresses the energy expended in _____.
A : kilojoules
B : calories
C : metabolic equivalents
D : kilocalories

Correct Answer : C

80 : EER is based on age, gender, weight, height, and _____.
A : physical activity
B : RMR
C : activities of daily living
D : percent fat-free mass

Correct Answer : A

MATCHING

81 : Select the key term that is most associated with the description below. Each term is used only once.

A : Room-size calorimeter	A : Commonly used in exercise physiology laboratories to determine the oxygen consumption and energy expenditure response

	to exercise, in some cases to determine maximal oxygen consumption
B : Metabolic cart	B : Ability to measure accurately what was intended to be measured
C : Bomb calorimeter	C : Used to directly measure the thermal energy of food
D : Doubly Labeled Water	D : Can measure both direct and indirect calorimetry
E : Reliability	E : Ability to reproduce a measurement and/or the consistency of repeated measurements
F : Enzyme	F : Level of energy expenditure equal to that measured at rest
G : Kinetic energy	G : Energy of motion
H : Potential energy	H : Used in free-living situations to measure energy expenditure over weeks
I : MET	I : A protein-containing compound that catalyzes biochemical reactions
J : Validity	J : Stored energy

Correct Answer :
A : D

B : A

C : C

D : H

E : E

F : I

G : G

H : J

I : F

J : B

FILL IN THE BLANK

82 : Rephosphorylation is an example of a(n) _____ reaction.

Correct Answer : endergonic

83 : In healthy individuals, two factors known to decrease resting metabolic rate are starvation and _____.

Correct Answer : age

84 : Studies have shown that people with more fat-free mass have higher _____ than those with less fat-free mass.

Correct Answer : RMR

85 : The most variable aspect of daily energy expenditure is the amount of energy expended through _____.

Correct Answer : physical activity

86 : When energy in is greater than energy out a persons body weight will _____.

Correct Answer : increase

ESSAY

87 : Describe each step of a muscle contraction.

Correct Answer : Answers will vary.

88 : What are the commonly used units of measure for energy in the fields of nutrition and exercise physiology, and how do they relate to the SI unit of measure for energy?

Correct Answer : Answers will vary.

89 : Distinguish between direct and indirect calorimetry. Compare and contrast several different measures of indirect calorimetry, considering accuracy and ease of use.

Correct Answer : Answers will vary.

90 : List and explain the factors that affect resting metabolic rate. In addition, which factors are the most substantial and least substantial influences?

Correct Answer : Answers will vary.

91 : Explain to a member of a health and fitness club why severely restricting food intake is not recommended and why it may be detrimental to the goal of permanent weight loss.

Correct Answer : Answers will vary.