BANK OF QUSTIONS

Chem(101) ١

بنك الأسئلة

القمة في

DOC MOHAMED ELSAYED

FIRST MID TEARM

CHAPTER ONE

MATTER AND MEASUREMENTS

لحجز الكورس خصوصي

لحجز الميد الاول

للمراجعة

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يشمل الكورس (شرح السلايدات – حل بنك الأسئلة – حل الاختبارات السابقة _ مراجعة ليلة الاختبار)

Chapter 1: Introduction: Matter and Measurement

Multiple Choice and Bimodal

1) Solids have a _____ shape and are not appreciably _____ .
A) definite, compressible
B) definite, incompressible
C) indefinite, compressible
D) indefinite, incompressible
E) sharp, convertible
Answer: A

2) Gases and liquid shares the property of_____
A) Definite volume
B) Indefinite shape
C) Incompressibility
D) Compressibility
Answer: B

3) The process of changing gas to liquid is called _____
A) Evaporation
B) Condensation
C) Sublimation
D) Deposition
Answer B

4) If matter is uniform throughout, cannot be separated into other substances by physical processes, but can be decomposed into other substances by chemical processes, it is called a (an)_____.
A) heterogeneous mixture
B) element
C) homogeneous mixture
D) compound
E) mixture of elements
Answer: D

5) Which of following is not SI derived unit?
A) g/cm
B) Kg m\S2
C) m\s
D) m3
answer A

6) The SI unit for mass is _____ .
A) kilogram
B) gram
C) pound
D) troy ounce
E) none of the above
Answer: A

7) A one degree of temperature difference is the smallest on the _____ temperature scale.
A) Kelvin
B) Celsius
C) Fahrenheit
D) Kelvin and Celsius
E) Fahrenheit and Celsius
Answer: C

8) **A common English set of units for expressing velocity is miles/hour. The SI unit for velocity is_____?**
A) km/hr
B) km/s
C) m/hr
D) m/s
E) cm/s
Answer: D

9) **the unit of force in the English measurement system is___ $\dfrac{1b \cdot ft}{s^2}$. The SI unit of force is the Newton, which is**

_____ in base SI units.

A) $\dfrac{g \cdot cm}{s^2}$

B) $\dfrac{kg \cdot m}{hr^2}$

C) $\dfrac{kg \cdot m}{s^2}$

D) $\dfrac{g \cdot m}{s^2}$

E) $\dfrac{g \cdot cm}{s}$

Answer: C

10) **Momentum is defined as the product of mass and velocity. The SI unit for momentum is_____?**
A) $\dfrac{kg \cdot m}{s}$

B) $\dfrac{kg \cdot m}{hr}$

C) $\dfrac{g \cdot m}{s}$

D) $\dfrac{g \cdot km}{s}$

E) $\dfrac{kg \cdot km}{hr}$

Answer: A

11) The SI unit of temperature is_____.
A) K
B) °C
C) °F
D) t
E) T
Answer: A

12) **The temperature of 25°C is_____in Kelvins.**
A) 103
B) 138
C) 166
D) 248
E) 298
Answer: E

13) The freezing point of water at 1 atm pressure is_____.
A) 0°F
B) 0 K
C) 0°C
D) -273°C
E) -32°F
Answer: C

14) **A temperature of 400 K is the same as_____°F.**
A) 261
B) 286
C) 88
D) 103
E) 127
Answer: A

15) A temperature of_____K is the same as 63°F.
A) 17
B) 276
C) 290
D) 29
E) 336
Answer: C

16) **1 nanometer =_____picometers**
A) 1000
B) 0.1
C) 0.01
D) 1
E) 10
Answer: A

17) **1 picometer** =_____centimeters
A) 1×10^{10}
B) 1×10^{-10}
C) 1×10^{8}
D) 1×10^{-8}
E) 1×10^{-12}
Answer: B

18) 1 **kilogram** =_____milligrams
A) 1×10^{-6}
B) 1,000
C) 10,000
D) 1,000,000
E) none of the above
Answer: D

19) "Absolute zero" refers to _____.
A) 0 Kelvin
B) 0° Fahrenheit
C) 0° Celsius
D) °C + 9/5(°F - 32)
E) 273.15°C
Answer: A

20) **The density (in g/cm³) of a gold nugget that has a volume of 1.68 cm³ and a mass of 32.4 g is _____.**
A) 0.0519
B) 19.3
C) 54.4
D) 0.0184
E) 32.4
Answer: B

21) The density of silver is 10.5 g/cm³. A piece of silver with a mass of 61.3 g would

occupy a volume of __ cm³.
A) 0.171
B) 644
C) 10.5
D) 0.00155
E) 5.84
Answer: E

22) The density of silver is 10.5 g/cm³. A piece of silver that occupies a volume of 23.6 cm³ would

have a mass of ____ g.
A) 248
B) 0.445
C) 2.25
D) 112
E) 23.6
Answer: A

23) **A certain liquid has a density of 2.67 g/cm^3 . 1340 g of this liquid** would occupy a volume of_____L.

A) 1.99×10^{-3}
B) 50.2
C) 3.58
D) 35.8
E) 0.502
Answer: E

24) **A certain liquid has a density of 2.67 g/cm^3 . 30.5 mL of this liquid would have a mass of_____Kg.**

A) 81.4
B) 11.4
C) 0.0875
D) 0.0814
E) 0.0114
Answer: D

25) Osmium has a density of 22.6 g/cm^3 . The mass of a block of osmium that measures
1.01 cm $\times$ 0.233 cm $\times$ 0.648 cm is_____g.

A) 6.75×10^{-3}
B) 3.45
C) 148
D) 6.75×10^3
E) 34.5
Answer: B

30) **3.337 g/cm^3 =_____kg/m^3**

A) 3.337×10^{-9}
B) 3.337×10^{-5}
C) 3337
D) 0.3337
E) 333.7
Answer: C

31) Homogeneous mixtures are also known as _____.
A) solids
B) compounds
C) elements
D) substances
E) solutions
Answer: E

31) **One side of a cube measures 1.55 m. The volume of this cube is_____cm³.**

A) 2.40×10^4

B) 3.72×10^6

C) 2.40

D) 3.72

E) 155

Answer: B

32) **45 m/s =_____km/hr**

A) 2.7

B) 0.045

C) 1.6×10^2

D) 2.7×10^3

E) 1.6×10^5

Answer: C

33) If an object, beginning at rest, is moving at a speed of 700 m/s after 2.75 min, its rate of acceleration (in m/s^2) is_____. (Assume that the rate of acceleration is constant.)

A) 1.6×10^5

B) 255

C) 193

D) 4.24

E) 1.53×10^4

Answer: D

40) The density of mercury is 13.6 g/cm^3. The density of mercury is_____kg/m^3.

A) 1.36×10^{-2}

B) 1.36×10^4

C) 1.36×10^8

D) 1.36×10^{-5}

E) 1.36×10^{-4}

Answer: B

41) There are_____ng in a pg.

A) 0.001

B) 1000

C) 0.01

D) 100

E) 10

Answer: A

42) The density of lead is 11.4 g/cm³ . The mass of a lead ball with a radius of 0.50 mm is _____ g. $\left(\text{Vsphere} = 4\pi r^3 /3 \right)$

A) 6.0

B) 4.6×10^{-2}

C) 4.6×10^{-5}

D) 6.0×10^{-3}

E) 4.6

Answer: D

Multiple-Choice

43) In the following list, only _____ is <u>not</u> an example of matter.
A) planets
B) light
C) dust
D) elemental phosphorus
E) table salt
Answer: B

44) What is the physical state in which matter has no specific shape but does have a specific volume?
A) gas
B) solid
C) liquid
D) salts
E) ice
Answer: C

45) A combination of sand, salt, and water is an example of a _____ .
A) homogeneous mixture
B) heterogeneous mixture
C) compound
D) pure substance
E) solid
Answer: B

48) Which one of the following is a pure substance?
A) concrete
B) wood
C) salt water
D) elemental copper
E) milk
Answer: D

46) Which one of the following is often easily separated into its components by simple techniques such as filtering or decanting?
A) heterogeneous mixture
B) compounds
C) homogeneous mixture
D) elements
E) solutions
Answer: A

47) Which states of matter are significantly compressible?
A) gases only
B) liquids only
C) solids only
D) liquids and gases
E) solids and liquids
Answer: A

48) If matter is uniform throughout and cannot be separated into other substances by physical
means, it is _____.
A) a compound
B) either an element or a compound
C) a homogeneous mixture
D) a heterogeneous mixture
E) an element
Answer: B

49) An element cannot_____.
A) be part of a heterogeneous mixture
B) be part of a homogeneous mixture
C) be separated into other substances by chemical means
D) interact with other elements to form compounds
E) be a pure substance
Answer: C

50) Homogeneous mixtures are also known as_____.
A) solids
B) compounds
C) elements
D) substances
E) solutions
Answer: E

51) In the following list, only_____is not an example of a chemical reaction.
A) dissolution of a penny in nitric acid
B) the condensation of water vapor
C) a burning candle
D) the formation of polyethylene from ethylene
E) the rusting of iron
Answer: B

52) Of the following, only_____is a chemical reaction.
A) melting of lead
B) dissolving sugar in water
C) tarnishing of silver
D) crushing of stone
E) dropping a penny into a glass of water
Answer: C

53) Which one of the following is not an intensive property?
A) density
B) temperature
C) melting point
D) mass
E) boiling point
Answer: D

54) Which one of the following is an intensive property?
A) mass
B) temperature
C) heat content
D) volume
E) amount
Answer: B

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55) Of the following, only _____ is an extensive property.

A) density

B) mass

C) boiling point

D) freezing point

E) temperature

Answer: B

56) Which of the following are chemical processes?

1. rusting of a nail
2. freezing of water
3. decomposition of water into hydrogen and oxygen gases
4. compression of oxygen gas

A) 2, 3, 4

B) 1, 3, 4

C) 1, 3

D) 1, 2

E) 1, 4

Answer: C

57) Dissolving sugar in water can be described as _____ .

A) Chemical changes and heterogeneous mixture

B) Chemical changes and homogenous mixture

C) Physical changes and heterogeneous mixture

D) Physical changes and homogenous mixture

Answer D

58) Which of the following statements is (are) true?

A- Compounds can be separated by physical methods into pure elements.
cannot easily

B- Homogeneous mixtures
separated by chemical or physical methods.

C- Heterogeneous mixtures can easily be separated by physical methods.

D- Elements can be separated into small particles by physical methods.

Answer C

60) Which of the following is a chemical change?

A) Oxidation of iron in air.

B) Mixing water and oil.

C) Melting ice.

D) Dissolving sugar in water.

Answer A

61) Which is NOT an extensive property of matter?

A) Density

B) Volume

C) Length

D) Mass

Answer A

12

62)Identify the INCORRECT statement:
(A) Helium is an element
(B) Paint is a mixture
(C)Milk is a compound
(D) Mercury is an element
Answer C

63)Non-SI unit from the following, is:
(A) kilogram (kg)
(C) inch (in)
(B) second (s)
(D) meter (m)
Answer C

SI units and prefixes

TABLE 1.2 SI Base Units

Base Quantity	Name of Unit	Symbol
Length	meter	m
Mass	kilogram	kg
Time	second	s
Electrical current	ampere	A
Temperature	kelvin	K
Amount of substance	mole	mol
Luminous intensity	candela	cd

TABLE 1.3 Prefixes Used with SI Units

Prefix	Symbol	Meaning	Example
tera-	T	1,000,000,000,000, or 10^{12}	1 terameter (Tm) = 1×10^{12} m
giga-	G	1,000,000,000, or 10^{9}	1 gigameter (Gm) = 1×10^{9} m
mega-	M	1,000,000, or 10^{6}	1 megameter (Mm) = 1×10^{6} m
kilo-	k	1,000, or 10^{3}	1 kilometer (km) = 1×10^{3} m
deci-	d	1/10, or 10^{-1}	1 decimeter (dm) = 0.1 m
centi-	c	1/100, or 10^{-2}	1 centimeter (cm) = 0.01 m
milli-	m	1/1,000, or 10^{-3}	1 millimeter (mm) = 0.001 m
micro-	μ	1/1,000,000, or 10^{-6}	1 micrometer (μm) = 1×10^{-6} m
nano-	n	1/1,000,000,000, or 10^{-9}	1 nanometer (nm) = 1×10^{-9} m
pico-	p	1/1,000,000,000,000, or 10^{-12}	1 picometer (pm) = 1×10^{-12} m

Derived quantity	Definition	S.I. unit in terms of base units	Alternative name for S.I. unit
Area	length × length	m^2	–
Volume	$(length)^3$	m^3	–
Density	mass/volume	$kg\ m^{-3}$	–
Speed, velocity	length/time	$m\ s^{-1}$	–
Acceleration	velocity/time	$m\ s^{-2}$	–
Momentum	mass × velocity	$kg\ m\ s^{-1}$	–
Force	momentum/time	$kg\ m\ s^{-2}$	newton, N
Pressure	force/area	$kg\ m^{-1}\ s^{-2}$	pascal, Pa, $N\ m^{-2}$
Work, energy	force × distance	$kg\ m^2\ s^{-2}$	joule, J
Power	work/time	$kg\ m^2\ s^{-3}$	watt, W

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