

TRƯỜNG ĐH SƯ PHẠM KỸ THUẬT TP HCM KHOA CN HÓA HỌC & THỰC PHẨM BỘ MÔN CÔNG NGHỆ HÓA HỌC		<b>ĐỀ THI CUỐI KỲ HỌC KỲ 2- NĂM HỌC 2016-2017</b> <b>Môn: ANH VĂN CHUYÊN NGÀNH (CNKTHH)</b> Mã môn học: PCHE221703 Mã đề: aibiet Đề thi có 6 trang. Thời gian: 75 phút (21/06/2017)
Chữ ký giám thị 1	Chữ ký giám thị 2	
CB chấm thi thứ nhất	CB chấm thi thứ hai	<b>Không sử dụng tài liệu.</b> SV chỉ nộp lại tờ phiếu trả lời.
Số câu đúng:	Số câu đúng:	
Điểm và chữ ký	Điểm và chữ ký	Họ và tên: ..... Mã số SV: ..... Số TT: ..... Phòng thi: .....

### PHIẾU TRẢ LỜI

STT		STT		STT	
1	Condenser	21	J	41	Crystallize
2	Water bath	22	D	42	Maximize
3	Volumetric flask	23	B	43	Clamp
4	Furnace/oven/kiln	24	Mixture	44	Moisten
5	Crucible	25	Silica/lime	45	Press
6	Wire gauze	26	Lime/silica	46	Watch
7	Separating funnel	27	Percentage	47	Oxidize/melt
8	Centrifuge	28	Fusibility	48	Melt/oxidize
9	Mortar and pestle	29	Cobalt	49	Determine
10	Spatula/scoopula	30	Addition	50	Recrystallize/crystallize
11	Dropper	31	Surfaces		
12	Tongs	32	Pressure		
13	Balance/scale	33	Resistance		
14	F	34	Insulators		
15	C	35	Apparatus		
16	H	36	Expansion		
17	A	37	Adhesive		
18	E	38	Bulletproof		
19	G	39	Swirl		
20	i	40	Dissolve		



**Question 1:** What are the pieces of laboratory equipment mentioned in the following? Write down your answers in the answer sheet.

*Example:*

0. a thin glass tube closed at one end, used to hold small amounts of material for laboratory testing or experiments. (Answer: *test tube*)
1. a device that cools vapours into liquids.
2. laboratory equipment made from a container filled with heated (or cooled) water. It is used to keep samples at a constant temperature over a long period of time.
3. a type of laboratory flask, used in analytical chemistry for the preparation of solutions; calibrated to contain a precise volume at a particular temperature.
4. an enclosed structure in which material can be heated to very high temperatures, e.g. for smelting metals
5. a ceramic container capable of withstanding extremely high temperatures. It is used for metal, glass, and pigment production as well as a number of modern laboratory processes.
6. a sheet of thin metal that has net-like crosses or a wire mesh. The purpose of it is to be placed on the support ring that is attached to the ring stand between the Bunsen burner and the beakers to support the beakers or flask during heating.
7. used in liquid-liquid extraction to separate the components of a mixture into two immiscible solvents phases of different densities.
8. a machine with a rapidly rotating container, typically used to separate fluids of different densities (e.g. cream from milk) or liquids from solids.
9. **they** are used to crush, grind, and mix solid substances.
10. used to take and handle small quantities of solid chemicals. It is used like a spoon or an instrument for scooping material out of a container.
11. small glass tube with narrow tip on one end and a rubber bulb on the other. It suck up liquid that can then be squeezed out in small drops.
12. used for grabbing things that should not be touched by hand, like hot beakers or crucibles. They look like scissors.
13. used to weigh chemicals.

**Question 2: Match each explanation in the left column with one type of hazardous chemical in the right column**

14. Living tissues as well as equipment are destroyed on contact with these chemicals.

A. Explosive

15. Substances that are very hazardous to health when breathed, swallowed or in contact with the skin and may even lead to death.

B. Highly Flammable

C. Toxic

16. Chemical substances interfering in some way with normal reproduction, including adverse effects on sexual function and fertility in adult males and females, as well as developmental toxicity in the

D. Dangerous for the environment

offspring.

17. Substances which may explode under certain conditions.

18. Substances that can ignite combustible material or worsen existing fires and thus make fire-fighting more difficult.

19. Substances which may cause slight inflammation or other discomfort to skin, eyes and respiratory organs.

20. a physical or chemical agent that changes the genetic material, usually DNA, of an organism and thus increases the frequency of mutations above the natural background level.

21. any substance or radiation that is an agent directly involved in causing cancer

22. substances which are harmful to the aquatic, as well as the non-aquatic environment or which have a detrimental effect at longer term.

23. substances that can be burnt or ignited, causing fire or combustion. They are usually liquids with low flash points.

**Question 3:** Fill each blank with one word from the following ones.

**Fusibility, bulletproof, adhesive, apparatus, addition, pressure, insulators, mixture, resistance, silica, cobalt, percentage, expansion, lime, surfaces.**

#### GLASS

Glass is generally a (24)..... of several silicates, produced by melting together (25)....., an alkali and (26)..... or lead. There are two general kinds of glass: lime glass and lead glass. The former is the more common, is cheaper, harder, more resistive and less fusible than lead glass. The latter has greater luster and brilliancy and is used chiefly for cut-ware and optical purposes. In general, the higher the (27)..... of silica, the harder, less fusible, and more brittle the glass.

(28)..... is decreased and hardness is increased by increasing the lime content. In colored glass a part of the lime and lead is replaced by oxides of iron, manganese, (29)....., etc. The addition of borates and phosphates improves glass for various optical and chemical purposes, as do also zinc and barium. German optical glass contains both zinc and barium. Practically all glass is decolorized in manufacture by the (30)..... of manganese dioxide.

E. Oxidizing

F. Corrosive

G. Irritant

H. Reprotoxic

I. Mutagenic

J. Carcinogenic

### Main types of glass:

- Window glass is generally a soda-lime glass and, formerly, was always blown.
- Plate glass is usually soda-lime glass cast on large tin (31)..... and subsequently ground and polished. Ground plate glass is extensively used for flooring.
- Pressed glass is made by forming heat-softened glass to shape in dies under (32)..... It is fairly inexpensive.
- Wire glass is glass having an iron wire screen thoroughly embedded in it. It offers about 3/2 times the (33)..... to bending that plain glass does, and very thin sheets may be walked on. It is used for flooring, fireproof doors, etc.
- Pyrex glass is a low-expansion borosilicate containing no metals of the magnesia-lime-zinc group and no heavy metals. Its main uses are chemical ware, baking ware, high-tension (34)....., sight glasses for chemical (35)....., glass pipe lines for chemical plants, etc. Owing to the low coefficient of (36)....., Pyrex glass withstands sudden changes of temperature without breaking.
- Safety glass consists of two layers of plate glass firmly held by an intermediate layer of celluloid, attached to the glass by a suitable (37) ..... . It can be struck by a sharp hammer blow without shattering, and when being sufficiently thick, it is practically (38).....

**Question 4:** Fill each blank with one word from the following ones.

**Maximize, watch, swirl, moisten, determine, dissolve, melt, clamp, crystallize, recrystallize, oxidize, press.**

### RECRYSTALLIZATION

**Preparing the solution.** Put the impure solid in a beaker of appropriate size, add solvent in small amounts, and sometimes gently (39) \_\_\_\_ the beaker on the hot plate as the solution is brought to the boiling point. If the solid does not completely (40)\_\_\_\_, additional solvent is added and the solution is reheated to the boiling point. Cease addition of solvent when the material has **just** dissolved. Be sure to wait sufficiently long between additions of solvent so as to achieve saturation, otherwise too much solvent will be used and there will be excessive loss of material.

2. **Cooling the solution.** Cool the solution slowly, with occasional swirling, to room temperature (or to 0° in an ice bath if appropriate) in order to encourage the formation of large, easily filtered crystals of the product. Really large crystals can be expected only with very slow cooling and without any agitation at all. Some substances (41) \_\_\_\_\_ extremely slowly, and several hours or days at low temperature (refrigeration is practical) may be required to (42) \_\_\_\_\_ your yield.

3. **Filtering the solution.** The recrystallized material is usually removed from the supernatant solution by suction filtration, using an appropriate filter mounted on a side-neck filter flask. Be sure to (43) \_\_\_\_\_ the filter flask to a ring stand. The apparatus has a high center of mass and therefore an unsupported rig has an unfortunate tendency to tip over. The most common filters used for this purpose are a sintered-glass funnel or a porcelain Büchner funnel that requires a piece of filter paper. It is important that a size is chosen which covers all the holes and lies absolutely flat (i.e., does not curl slightly up the sides of the funnel). **When**

using a Büchner funnel, you should (44) \_\_\_\_\_ the positioned filter paper with the solvent which is being employed and then apply suction. When all of your crystals have been transferred to the filter funnel (with the help of a spatula) and sucked reasonably dry, (45)\_\_\_\_\_ them down on the filter with your spatula in order to assist in the sucking off of additional solution.

4. **Washing the crystals.** The small amount of adhering solution which contains soluble impurities may be removed by stopping the suction, adding a few mL of fresh, cold (ice-cold if appropriate) solvent, stirring up the crystals with your spatula, and then re-applying the suction. This washing process may be repeated several times, as appropriate.

5. **Drying the crystals.** Dry the crystals as much as possible on the filter by the application of suction; then transfer them to an appropriate size of (46) \_\_\_\_\_ glass or beaker. Oftentimes complete drying can be achieved by just letting the material stand, in a relatively thin layer, in a well ventilated place for several hours. Of course if the crystals are thermally stable, do not (47)\_\_\_\_\_, and do not (48)\_\_\_\_\_ , they can be dried in an oven.

6. **Checking for purity.** A common way to check the purity of a compound is to (49) \_\_\_\_\_ its melting point and then compare it with the value reported in chemical handbooks or research papers. If a published value is not available, it is common practice to (50)\_\_\_\_\_ again the compound and to redetermine its melting point. If it is the same as before, it is likely to be pure. A compound which has a melting point that is lower than the published value (or which is not really a "point" but a "range) can be judged to be impure or to decompose on heating. If a compound decomposes instead of melting, the melting point can not be used for characterization.

*Ghi chú: Cán bộ coi thi không được giải thích đề thi.*

<b>Chuẩn đầu ra của học phần (về kiến thức)</b>	<b>Nội dung kiểm tra</b>
G1.1: Đọc hiểu được các tài liệu tiếng Anh liên quan đến các quy trình trong phòng thí nghiệm hóa học.	Câu 1, 4
G1.2: Đọc hiểu được Material Safety Data Sheet (MSDS) của các loại hóa chất.	Câu 2
G1.3: Đọc hiểu được các tài liệu tiếng Anh chuyên ngành liên quan đến quy trình sản xuất hóa học.	Câu 3

Ngày 14 tháng 06 năm 2017

**Thông qua bộ môn**