



جامعة بيروت العربية
BEIRUT ARAB UNIVERSITY

**Medical Faculties
Admission Exam**

2014-2015

Applicants for undergraduate programs in the medical faculties (Faculty of Health Sciences, Medicine, Pharmacy and Dentistry) at Beirut Arab University are required to sit for an entrance exam designed to measure general academic ability, comprehension of scientific information of basic science (biology, chemistry, physics), and thinking skills.

References:

Lebanese High School Program and SAT

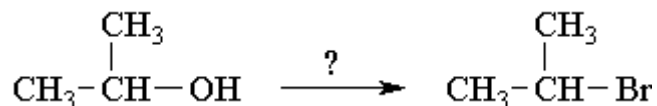
International Medical admission Testing (I MAT), University of Cambridge.
Faculty of Pharmacy:

University of Cambridge international examinations, International general certificate of secondary education.

Dental Admission Testing, American Dental Association (DAT)

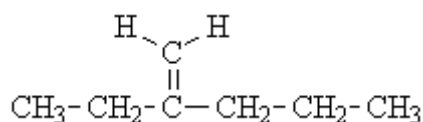
Medical Faculties
Admission Exam (2014-2015)
Samples Questions of Scientific Knowledge

1. What is the best reagent to convert isopropyl alcohol to isopropyl bromide?



- a. HBr
- b. SOBr₂
- c. Br₂
- d. CH₃MgBr

2. What is the best name for the following compound?



- a. 3-Methylenehexane
- b. 2-Propyl-1-butene
- c. 4-Ethyl-4-pentene
- d. 2-Ethyl-1-pentene

3. Eugenol is the major component in oil of cloves. It has a molar mass of 164.2 g/mol. After analysing eugenol, it was found to contain 73.14% carbon and 7.37% hydrogen; the remainder is oxygen. What is the molecular formula for eugenol?

- a. C₆ H₁₀ O₂
- b. C₁₀ H₁₂ O
- c. C₆ H₁₂ O₂
- d. C₁₀ H₁₂ O₂

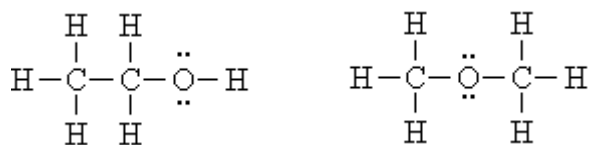
4. A sample contains 27.1 g of calcium oxide. How many moles of calcium oxide are in the sample?

- a. 0.483
- b. 0.852
- c. 1.253
- d. 0.689

5. How many mL should you take from a 70% solution to dilute it to a 21% solution?

- a. 20 mL
- b. 30 mL
- c. 50 mL
- d. 60 mL

6. How are the following compounds related?



- Positional isomers
- Chain isomers
- Functional isomers
- These compounds are not related at all...they are totally different.

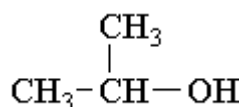
7. What is the hybridization of carbons in a benzene ring?

- Sp^3
- Sp^2
- Sp
- None of the above

8. Which of the following is the general formula for alkynes?

- C_nH_n
- $\text{C}_n\text{H}_{2n+2}$
- C_nH_{2n}
- $\text{C}_n\text{H}_{2n-2}$

9. What type of alcohol is the following compound?



- Primary alcohol
- Secondary alcohol
- Tertiary alcohol
- Quaternary alcohol

10. In a hydrophilic micelle:

- The hydrocarbon ends are pointed outward
- The hydrophobic ends are directed towards the aqueous solution
- The hydrophilic ends are pointed towards the centre of the micelle
- The hydrophilic ends are directed outward

11. During human intense muscular work and fasting, the average glycemia value is

- a. < 1.2 g/l
- b. > 1 g/l
- c. < 0.8 g/l
- d. > 6 g/l

12. Menstruation occurs directly after the

- a. Ovulation
- b. Secretory phase
- c. Proliferative phase
- d. Follicular phase

13. Proteins include all of the following EXCEPT

- a. Insulin
- b. Albumin
- c. Lecithin
- d. Fibrinogen

14. Lipid-soluble vitamins include all of the following EXCEPT

- a. A
- b. B
- c. D
- d. E

15. If a male who is heterozygous for Huntington's disease marries a female who is also heterozygous for this trait, what percent of their offspring are likely to be heterozygous for this trait as well

- a. 25%
- b. 50%
- c. 75%
- d. 100%

16. If you are provided with the following sequence of mRNA;

AGGGUAAUGACUGCCGAACAAGUCUAGACCGCU

The number of amino acids in the formed protein will be:

- a. 6
- b. 8
- c. 9
- d. 11

17. The most characteristic effect of HIV infection is the reduction in the number of

- a. B cells
- b. LT4 cells
- c. Virus cells
- d. Macrophages

18. Which of the following is not a function of bones?

- a. Place for muscle attachment
- b. LT4 cells Protection of vital organs
- c. Secretion of hormones for calcium regulation in blood and bones
- d. Production of blood corpuscles

19. Our skin, when exposed to excess sunlight, becomes dark. Of the following, which represents our skin pigments?

- a. Flavoxanthin
- b. Melanin
- c. Carotene
- d. Xanthophyll

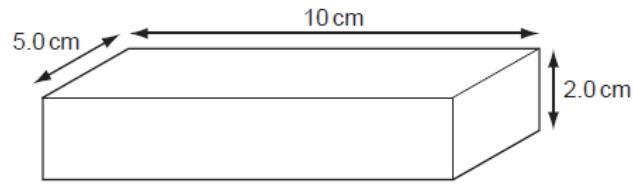
20. 1Antibiotics are becoming less effective due to

- a. People not finishing the full course.
- b. People becoming immune to them.
- c. People becoming resistant to them.
- d. Artificial selection.

21. The circuit of a motor racing track is 3 km in length. In a race, a car goes 25 times round the circuit in 30 minutes. What is the average speed of the car?

- a. 75 km / hour
- b. 90 km / hour
- c. 150 km / hour
- d. 750 km / hour

22. The diagram shows a rectangular metal block measuring 10 cm × 5.0 cm × 2.0 cm.



Its mass is 250 g. What is the density of the metal?

- a. 0.20 g / cm³
- b. 0.40 g / cm³
- c. 2.5 g / cm³
- d. 5.0 g / cm³

23. Four glass tanks contain water.

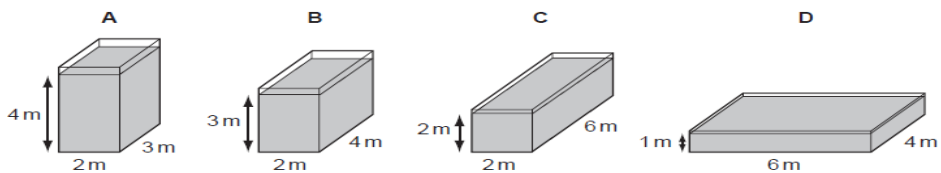
In which tank is the pressure of the water on the base greatest

a. ...

b.

c.

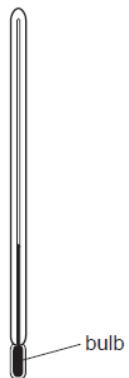
d.



24. Air is pumped slowly into a car tyre to increase the pressure. The temperature of the air does not change. Which line in the table is correct?

	number of molecules hitting 1 cm ² of the tyre each second	average speed at which molecules hit the tyre
A	increases	increases
B	increases	unchanged
C	unchanged	increases
D	unchanged	unchanged

25. The thermometer in the diagram has no scale. Where must the bulb be placed so that 0 °C can be marked on the stem?



- a. In
- b. In cold water
- c. In a freezer
- d. In melting ice

boiling water

**Medical Faculties
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Samples Questions of Thinking Skills**

1. A publisher produces magazines, all of which have a number of pages which is a multiple of 32. Thus, a magazine can have 32, 64, 96..... pages. The front cover is always counted as page 1. The centre spread of the magazine could have pages numbered

- a. 15 and 16
- b. 30 and 31
- c. 50 and 51
- d. 96 and 97

2. The motor-car, that at first brought such freedom of private travel, has become a monster that is damaging our cities. The motor-car used to be affordable only by the rich, but there are now 21 million cars in this country, and the number is still rising steeply. The huge number of cars in city centres has produced intolerable congestion and pollution. We have reached the stage where the use of private cars must be curbed. Otherwise, we will see a worsening of the current situation, where it is already becoming quicker to walk through a city in the rush hour than to drive through it. Which of the following best expresses the main conclusion of the argument above?

- a. The motor car no longer gives us freedom of travel.
- b. Increasing provision of public transport would solve traffic problems in city centres.
- c. It is necessary to limit the use of motor cars by private individuals.
- d. Pollution and congestion are damaging our city centres.

3. If Widdett and Co do not increase wages then staff morale will continue to drop and productivity will fall. This would lead to smaller profits and could mean the end of the business altogether. Either the company must pay better wages or run the risk of closing down. Which of the following best expresses the conclusion of this argument?

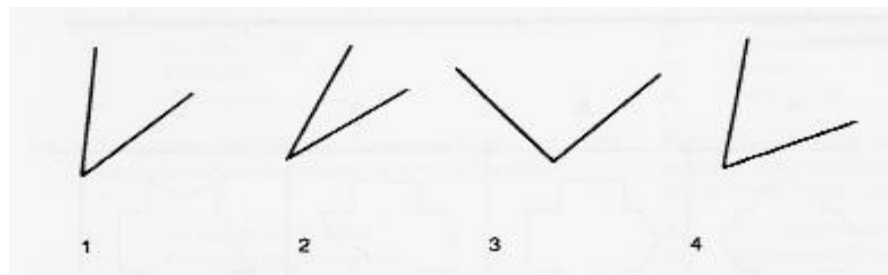
- a. Staff morale has reached dangerously low levels.
- b. If wages are not increased the business could close down.
- c. The employers will have to accept a fall in productivity.
- d. A fall in productivity could mean the end of the business.

4. Lenton Cars hire out cars at a cost of £50.00 per day if the number of miles travelled is less than 80. There is an extra charge of £1.00 for every mile travelled over 80 miles. Dunford Hire charge £60.00 per day for taking the car out and then 50 p for every mile travelled. For how many miles travelled would the cost of hiring a car be the same for both hire companies?

- a. 100
- b. 130
- c. 140
- d. 180

5. You are to examine the four INTERIOR angles and rank each in terms of degrees from SMALL TO LARGE. Choose the alternative that has the correct ranking.

Test

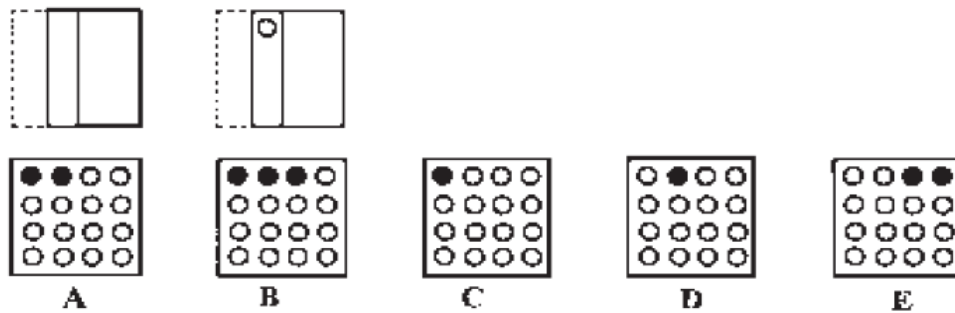


- a. 1-2-3-4
- b. 2- 1- 4- 3
- c. 1- 3-2-4
- d. 3-1- 4-2

6. On the M53 is a sign 'Warrington 20'. Just over half a mile further on is another sign 'Warrington 19'. This is not really surprising, since the distances are rounded to the nearest whole number of miles e.g. numbers of 4.5 and over but less than 5 become 5, numbers of 4 and over but less than 4.5 become 4. Half a mile further along the road is a sign showing 'Warrington 18'. The distance to Warrington must now be between

- a. 17.5 miles and 17.6 miles
- b. 17.6 miles and 18.0 miles
- c. 18.0 miles and 18.2 miles
- d. 18.4 miles and 18.5 miles

7. For the following 3 questions a flat square of paper is folded one or more times. The broken lines indicate the original position of the folded paper. The paper is never turned or twisted. The folded paper always remains within the edges of the original square. There may be from one to three folds in each item. After the last fold a hole is punched in the paper. Your task is to mentally unfold the paper and determine the position of the holes on the original square. Choose the pattern of black circles that indicates the position of the holes on the original square. There is only one correct pattern for each item.



- a. A
- b. B
- c. C
- d. D

8. Levels of financing health services in advanced industrial countries have little effect, statistically speaking, on the health of the population. There are countries which spend six times as much per head on health care as Britain, and countries which spend only half as much: their populations end up with more or less the same life expectancy. Therefore arguments about levels of financing Britain's National Health Service are largely irrelevant to the health of the population. Which of the following is an underlying assumption of the above argument?

- a. The cost of Britain's Health Service is disproportionate to its effectiveness
- b. Spending is the most effective way of improving a health service.
- c. Advanced industrial countries have failed to improve the health of their population.
- d. Life expectancy is a reliable measure of the health of the population.

9. Ever since Uranus was discovered in 1781, astronomers have thought there might be more planets to be discovered in the Solar System. Because of small deviations in the orbits of Uranus and Neptune - deviations which would occur if another planet existed - some astronomers think there must be an undiscovered planet - Planet X. But the search for Planet X is futile, because these deviations would occur if the orbits had been wrongly predicted. Since Uranus and Neptune take many decades to circle the sun, astronomers must rely on old data in order to calculate their orbits. If this data is inaccurate, the calculated orbits are wrong. If the calculated orbits are wrong, Uranus and Neptune will deviate from them even if there is no Planet X. Which of the following is the best statement of the flaw in the argument above?

- a. From the fact that the old data is inaccurate, it cannot be inferred that the calculated orbits are wrong.
- b. From the fact that the data about the orbits is old it cannot be inferred that it is inaccurate.
- c. From the fact that deviations occur which would occur if Planet X existed, it cannot be inferred that Planet X exists.
- d. From the fact that the calculated orbits are wrong, it cannot be inferred that Uranus and Neptune will deviate from them.

10. Organic farming of animals and crops improves the environment through a reduced use of chemical fertilisers and pesticides but this does not go far enough. It would be preferable to have a totally vegetarian agriculture. Ninety per cent of the vegetable matter fed to farm animals passes straight through with its calorific content intact. By eating vegetables directly, rather than feeding them to animals, substantially less land would have to be farmed. The remaining land could be returned to its historical state - mixed deciduous woodland, which is what the countryside needs most of all. Which of the following best expresses the main conclusion of the above argument?

- a. Organic farming enhances the environment.
- b. It would be preferable to have a totally vegetarian agriculture.
- c. A totally vegetarian agriculture would reduce the need for pesticides.
- d. There would be a need for less land under cultivation if we ate vegetables directly.