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FINAL EXAMINATION

ACADEMIC YEAR 2011 / 2012

PACKAGE B

Subject	: SCIENCE
Grade/ Semester	:/ 2
Day / Date	: May, 2012
Time	: 07.30 – 09.30 WIB

INSTRUCTION

1. Write your *name*, *class* and *student number* on the top right side in the available column of the answer sheet.
2. Check and read the test items carefully before you answer them.
3. Report to the observer, if there is/are unclear typing, damage or incomplete test item(s).
4. It is not permitted to use dictionary, cell phone, or other facilities!
5. The way to answer the test:
 - a. For the multiple choice items, cross the correct answer (X) in your answer sheet.
If you want to change your answer, revise the wrong answer by drawing two horizontal lines, then cross the correct one.

Example: Former answer C: ABCD ✕

Correct answer B: ABC ✕ ~~BC~~

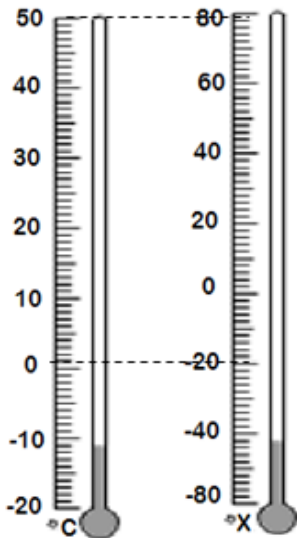
- b. For the essay test items, do them at the available space.
6. Recheck your answer carefully before you submit it to the observer.

1. Which of the pair of fundamental quantity and its SI unit are true?

No	Physical Quantities	SI unit
I	Mass	kilogram
II	Velocity	meter per second
III	Force	dyne
IV	time	second

- A. I and II
- B. I and III
- C. I and IV
- D. II and IV

2. Observe the following figure.

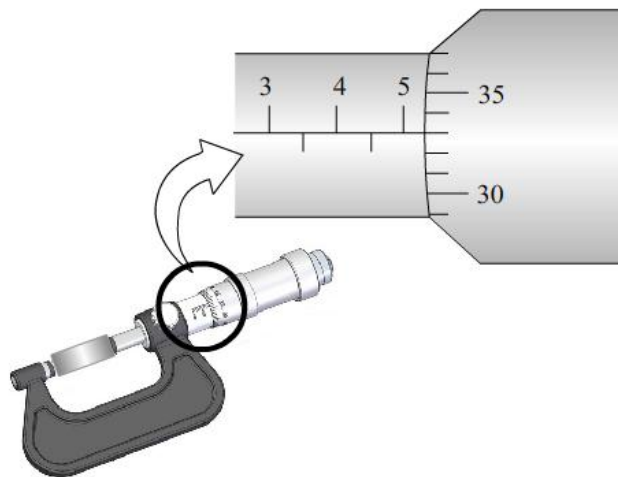


Based from the figure, the temperature of X thermometer in the boil water is....

- A. 80 °X
- B. 120 °X
- C. 140 °X
- D. 180 °X

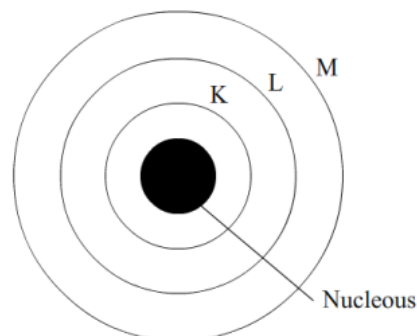
3. Someone use a micrometer to measure the length of an object that is shown by the figure. Based from the data of the figure, the length of the object is

- A. 4.23 mm
- B. 4.73 mm
- C. 5.33 mm
- D. 5.83 mm



4. The figure beside show a diagram of an atom. K, L and M are the shells of an atom starting from the shell that nearest of the nucleus. The maximum number of electron of shell L is

- A. 2
- B. 8
- C. 18
- D. 32

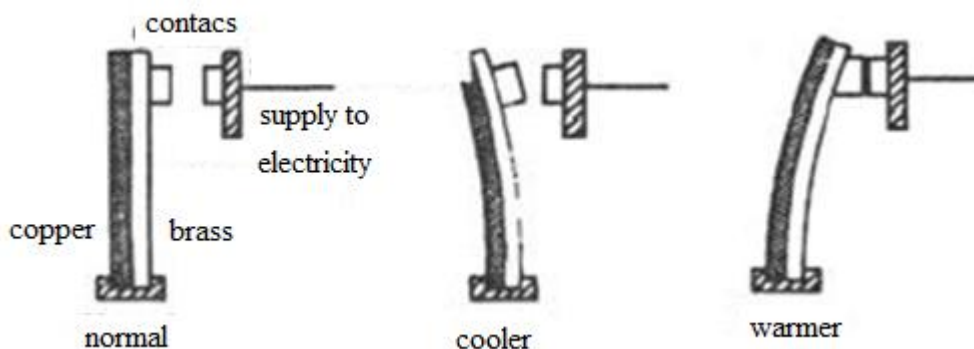


5. Three kinds of gases were observed of the following figure. Mass of three gases was measured by the balance as shown as the figure below.



All containers have same volume. How the comparison of the density?

- A. The density of $A < B < C$
 - B. The density of $A < C < B$
 - C. The density of $C < B < A$
 - D. The density of $B < C < A$
6. Observe the following figure.



Based from the figure, if the bimetal was heated, it will....

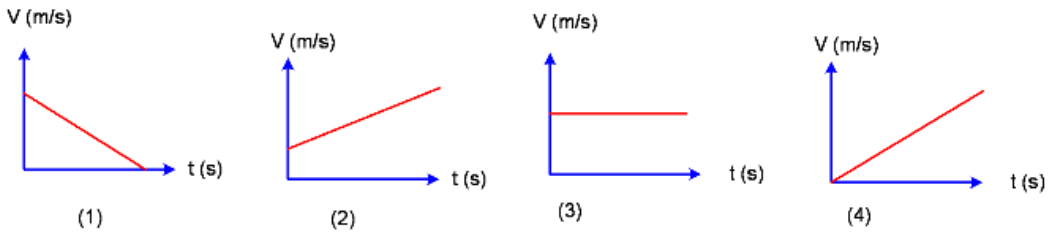
- A. become longer in straight position
 - B. bent to the bigger coefficient of length expansion metal
 - C. bent to right direction of electric circuit.
 - D. bent to the smaller coefficient of length expansion metal
7. If water has a mass 200 g and is heated from 25°C up to 45°C, the amount of heat energy needed is
 ($C_{water} = 4200 \text{ J/kg}^\circ\text{C}$).
- A. 16,800,000 joule
 - B. 1,680,000 joule
 - C. 168,000 joule
 - D. 16,800 joule
8. Observe the following table that shows the chemical formula of many substances.

	Substances
1	O_2
2	$\text{C}_6\text{H}_{12}\text{O}_6$
3	H_2
4	H_2O

Which of the data from the table include compound molecules

- A. 1 dan 2
- B. 1 dan 4
- C. 2 dan 4
- D. 3 dan 4

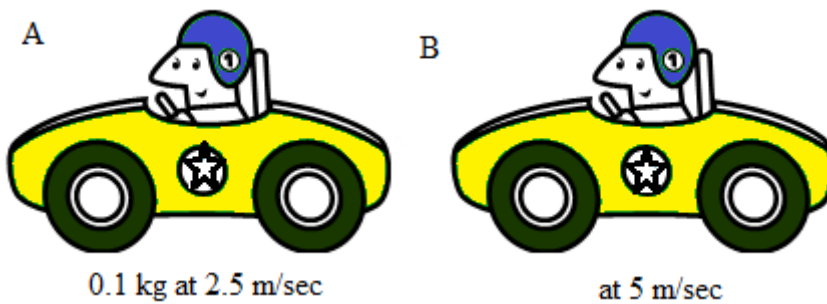
9. Observe the following graphs



The right graph that shows linier accelerated motion is.....

- A. 1 and 3
- B. 1 and 2
- C. 2 and 4
- D. 3 and 4

10. Observe the following figure in lab investigation of toy car.

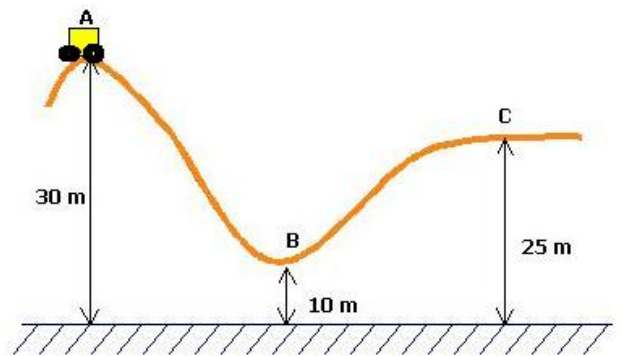


Calculate the kinetic energy comparison of the car for the point of A and B using the speed and mass values above.

- A. 1 : 2
- B. 1 : 4
- C. 2 : 1
- D. 4 : 1

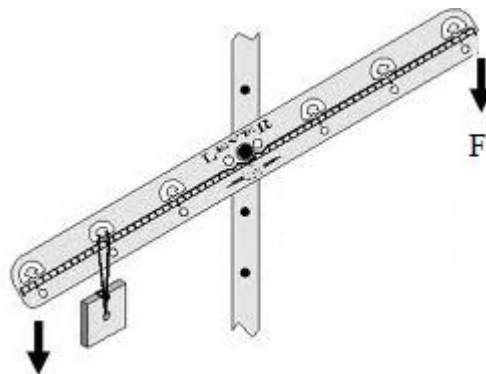
11. Observe the figure on the right. A roller coaster car moves from point A to B then C. What is the potential energy at B and C relative to A?

- A. Potential energy of roller coaster at point A more than B
- B. Potential energy of roller coaster at point B more than C
- C. Potential energy of roller coaster at point C more than A
- D. Potential energy of roller coaster at point B more than A

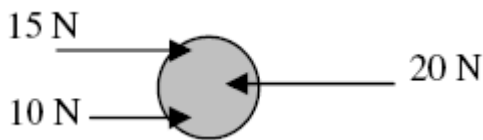


12. Observe the following figure. The lever is out of balance because there is a load on one side, the mechanical advantage of this system is.....

- A. 3
- B. 2
- C. 3/2
- D. 2/3

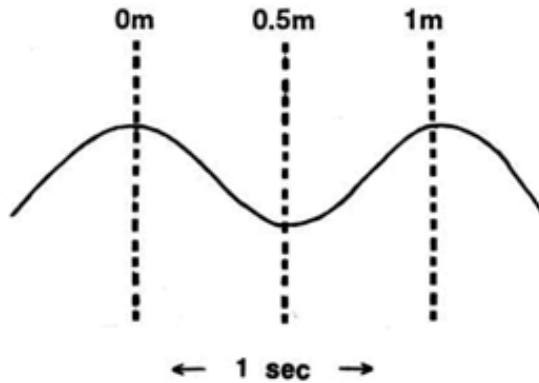


13. A ball was given three forces as shown as the following figure.



The resultant force is....

- A. 45 N
 - B. 25 N
 - C. 15 N
 - D. 5 N
14. Two experimental data of wave was observed as shown as the figure. The period of wave is....



- A. 1 second
- B. 2 second
- C. 3 second
- D. 4 second

15. The atomic number of Magnesium is 12. Electron configuration of this element is....

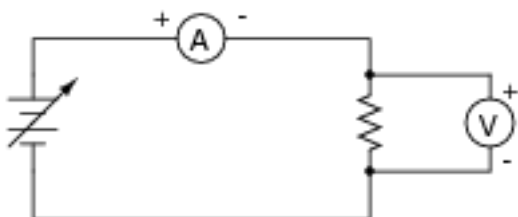
- A. 2, 10
- B. 2, 8, 2
- C. 2, 2, 8
- D. 2, 2, 6, 2

16. Observe the electron configuration from the table below

The number of electron in shell..			
	Atomic symbol	K	L
1	Li	2	1
2	Be	2	2
3	B	2	3
4	C	2	4
5	N	2	7

what is the special characteristic of the these atoms?

- A. All atoms placed in the same period
 - B. All atoms placed in the same group
 - C. All atoms placed in the same shell
 - D. All atoms placed in the same
17. Suppose you were to build this circuit and take measurements of current through the resistor and voltage across the resistor:



The table below shows the result of this experiment:

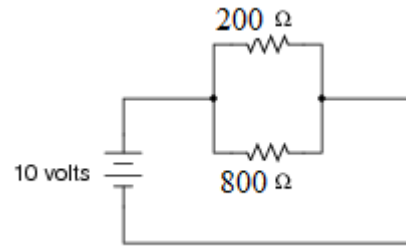
	Current	Voltage
P	0.22 A	0.66 V
Q	0.85 A	2.54 V
R	1.05 A	3.18 V
S	1.80 A	5.41 V

Base on the Ohm's Law, which conductor has the biggest resistance?

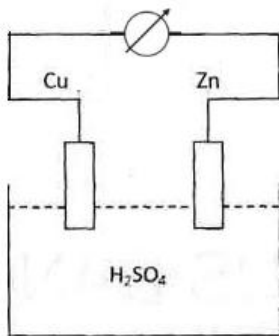
- A. P
- B. Q
- C. R
- D. S

18. A common electricity circuit is that always takes the path of least resistance. Observe the following circuit. The total resistance of the circuit is....

- A. 1000 Ohm
- B. 600 Ohm
- C. 240 Ohm
- D. 160 Ohm



19. The following figure is one of the electric source

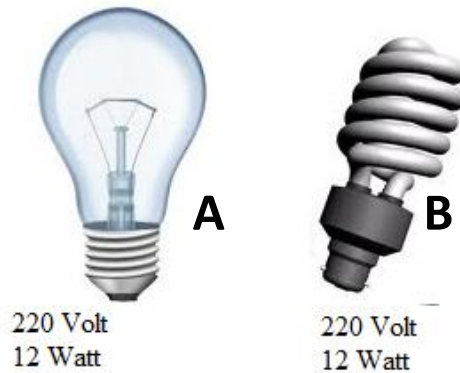


Which part has function to be the positive pole?

- A. Cu
- B. Zn
- C. H₂SO₄
- D. Cu, Zn

20. The students comparing of two electric iron base on the following data. Based from the figure, which of the right statement?

- A. A has the power more than B
- B. A has the same power with B
- C. A has the power less than B
- D. A need the different voltage with B

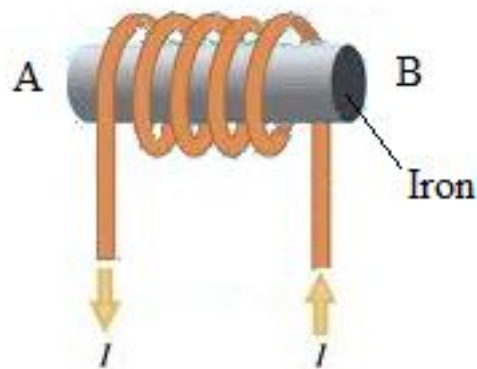


21. The following figure is one of magnetization process of an iron bar. The following statements based on the activity:

1. A to be the North pole
2. B to be the South pole
3. A to be the South pole
4. B to be the North pole

The right answer is....

- A. 1 and 2
- B. 1 and 3
- C. 2 and 3
- D. 3 and 4



22. Two students do the activity to produce electric from the coils.

		A	B
1	The number of coils	200 coils	120 coils
2	The metal core	steel	iron
3	Shape of coils	circle	Square
4	The speed of magnet motion	20 m/s	12 m/s
5	The direction of magnet pole	North	South

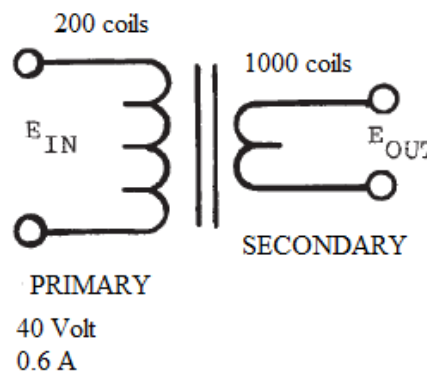
Which of the factors that cannot affect EMF induction?

- A. 1 and 3
- B. 2 and 4
- C. 3 and 5
- D. 4 and 5

23. Observe the figure of transformer.

Base from the data, define the Secondary Voltage and electric current.

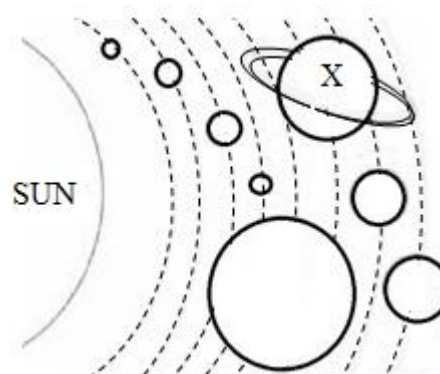
	Secondary Voltage	Secondary current
A	200 Volt	0.12 Amp
B	8 Volt	3 Amp
C	200 Volt	3 Amp
D	8 Volt	0.12 Amp



24. Observe the picture below.

What is the characteristic of X planet?

- A. One of superior planets
- B. Terrestrial planet, consist of Silicon and Aluminum
- C. The smallest planet in our solar system
- D. The outer most planet in solar system



25. Two elements Cl and Na have the configuration 2, 8, 7 and 2, 8, 1, the chemical bonding of these elements are.....

- A. NaCl
- B. Na Cl₂
- C. Na₂Cl
- D. Na₂ Cl₂

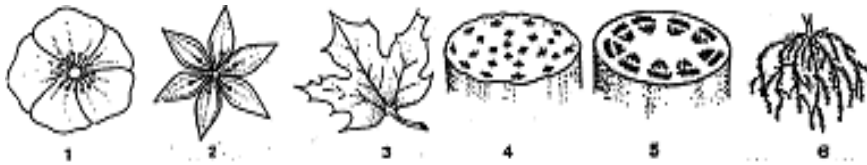
26. Pays attention the following data:

1. Having breath
2. Requires nutrition
3. moving
4. swimming
5. irritability
6. reproduction

According to data, the characteristics of living thing are...

- A. 1, 2, 3, 4
- B. 1, 3, 5, 6
- C. 2, 3, 4, 6
- D. 3, 4, 5, 6

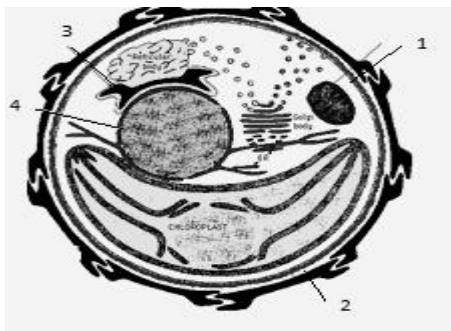
27. Consider the characteristics of organ below!



The characteristics of monocotyledoneae are

- A. 1, 3 and 5
- B. 1, 4 and 6
- C. 2, 3 and 4
- D. 2, 4 and 6

28. The diagram below shows the structure of animal cell.



The part of cell which has function as the place for cell respiration shown by number

- A. 1
- B. 2
- C. 3
- D. 4

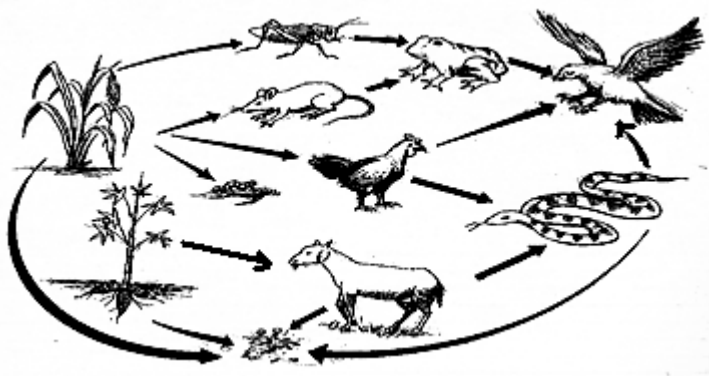
29. The data below are ecological relationship:

- 1. butterfly with *Hibiscus rosasinensis*
- 2. remora fish with shark
- 3. legume plant *Rhizobium sp.*
- 4. orchid with mango

Mutualism symbiosis shown by number

- A. 1 and 2
- B. 1 and 3
- C. 2 and 3
- D. 2 and 4

30. Identify the following figure:



If the population of chick, increase so population of

- A. snake increase and eagle increase
- B. paddy increase and snake decrease
- C. paddy increase and eagle increase
- D. snake increase and rat decrease

31. In an ecosystem there are corn plant, rat, snake, grasshopper, starling, and fox, when this ecosystem was spraying of insecticide so population of...
- A. grasshopper increase
 - B. fox decrease
 - C. corn plant increase
 - D. starling decrease
32. Rhinoceros in Ujung Kulon Bandung is an endangered animal; it is caused by the illegal logging. An effort to preserve it is....
- A. cultivate it animal
 - B. built the zoo to preserve them
 - C. rehabilitation of conservation program of Rhinoceros
 - D. conservation of their natural habitat
33. In our modern life, factories and motor vehicles give the great contribution of pollution. If there is an increasing amount of sulphur in the atmosphere, the people and environment will get the effect. One of the effects is
- A. green house effect
 - B. blooming algae
 - C. eutrophication
 - D. acid rain
34. Eutrophication in the river shows pollution in that place. That case happens because
- A. the regular planting by farmer
 - B. the using of excessive fertilizer
 - C. the giving of high-dosage pesticide
 - D. the discharge off garbage in the river
35. Look at the figure below!



The muscle tissue will be found at the

- A. kidneys
- B. intestine
- C. heart
- D. skeleton

36. Identify the table below!

Number	Enzyme	Letter	The result of enzyme digestion
1	Pepsin	A	amino acid
2	Tripsin	B	pepton
3	Lipase	C	lipid acid and glicerol

Correct couple number and letter at tables above are

- A. 1 - C, 2 - A, 3 - B
- B. 2 - B, 3 - C, 1 - A
- C. 2 - C, 3 - A, 1 - B
- D. 3 - C, 2 - A, 1 - B

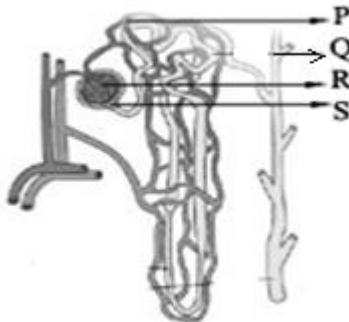
37. The final digestion of rice and white fish is...
- glucose and amino acid
 - fructose and albumin
 - maltose and pepton
 - sucrose and protein

38. Consider the following table!

	Characteristics of blood vessel
1	If hurts the blood will spread out
2	The valves are many, large, and along the vessel
3	Bring the blood from the heart
4	The beat is not detected
5	Has no elastic thick wall

The characteristics of veins vessel are shown by number...

- 1-2-3
 - 1-3-4
 - 2-4-5
 - 3-4-5
39. Look at the following picture

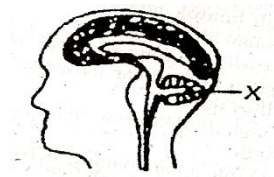


The reabsorption process takes place in the part pointed by...

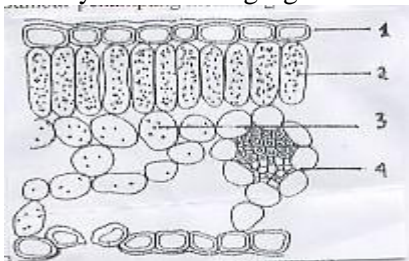
- P
- Q
- R
- S

40. The symbol X in the figure of brain has function as....

- the controller of balance and movement
- reflex movement that involves sight
- the controller of heart work
- the controller of body temperature



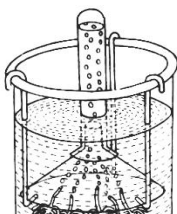
41. Identify the following figure:



The part of leaf tissue that contain most chloroplast shown by the number

- 4
- 3
- 2
- 1

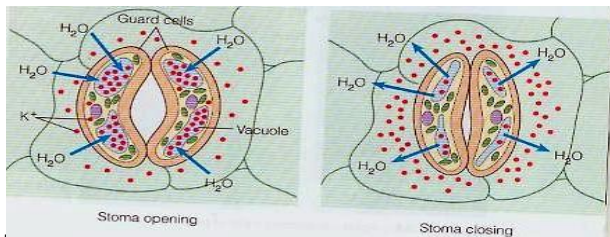
42. Attention to the diagram of photosynthesis experiment below!



The factor which increases the volume of oxygen gas that accumulates on the top of the tube is

- A. the increase of water movement
- B. the increase of light intensity
- C. the decrease of light intensity
- D. the decrease of air movement

43. Look at the figure below!



The stomata of plants always open and close to take and out the gas every day. That fact shows a plant response which is caused

- A. stake
 - B. wood
 - C. touch
 - D. sunray
44. Hillbilly people who live on mountainous area or plateau will produce more erythrocyte than people who live on lowland area. The similar adaptation with the illustration is
- A. a chameleon will change the body color to protect itself from enemy
 - B. a termite has cellulase enzyme used for breaking down cellulose
 - C. a camel has long eyelash to protect its eyes from dust
 - D. an eagle has hefty beak to hold its prey
45. Wrinkled-green seed is crossed with a round-yellow seed. Round and yellow are dominant to the wrinkled and green. It produces round-yellow seed for the first generation. If the same first generations are crossed, it will produce some offspring with four different kinds of phenotype. The ratio of offspring phenotype is 9:3:3:1, so the possibility phenotype of offspring which has quantity 3/16 is
- A. wrinkled-yellow seed
 - B. wrinkled-white seed
 - C. round-yellow seed
 - D. round-white seed

46. The following is crossing of *Mirabilis jalapa*.



If one of the *Mirabilis jalapa* has orange flower homozygote and the other has white flower, while M is dominant gene and m is recessive gene, so phenotype of F2 generation will be

- A. 100% orange
 - B. 25% white, 75% orange
 - C. 50% orange, 50% yellow
 - D. 25% orange, 50% white, 25% yellow
47. Reproduction technology is increasingly developed in this modern-day, usually for producing the good offspring. One of the processes is placing the sperm into the reproductive tract of a female for the purpose

of impregnating the female by using means other than [sexual intercourse](#) or [natural insemination](#). The type of this technology applied is called

- A. cloning
 - B. tissue culture
 - C. in vitro technique
 - D. artificial insemination
48. There are some biotechnology products in the world, one of them is spirulina. Spirulina is a biotechnology product which made using *Chlorella sp* algae. Usually this product is produced in great scales because it has many advantages. The correct advantage of spirulina is
- A. can cure the sufferer of diabetes insipidus
 - B. can help the sufferer of diabetes mellitus
 - C. can be substituted for protein-rich foods
 - D. can be used for the single cell of fat
49. Pickled fruit is one of a meal which is commonly consumed by people. The taste it's very delicious and fresh. The possibly natural food additive that is used to preserve that meal is
- A. benzoat
 - B. anisol
 - C. sugar
 - D. salt
50. Consuming cigarette on a long term is not good for our health, but sometimes we found people still use it because they thought that it can make them relax and enjoy. Not only adults consume the cigarette but also teenagers. Therefore, it must be informed that there are several effects of smoking cigarette. First, we can get lung and cancer diseases and second, we can be addicted. One of harmful substances in cigarette which cause addiction effect is
- A. tar
 - B. tannin
 - C. nicotine
 - D. carbon monoxide