Division **M** LEVEL 3 (Year 7, 8 & 9)	**ASIAN SCIENCES OLYMPIAD 2015 CONTEST**	

Full Name: **Year:**

IC No: **Date:** **Time:**

School Name: **School Code:**

Rules and Regulations

(Please read these rules and regulation carefully)

1. Please fill in your **FULL name** correctly, IC no, school name, school code (if available) and the date and time of contest clearly in the spaces above. Those who do not fill in the required particulars will be disqualified automatically.
2. Do not open the question booklet until you are told to do so.
3. No calculators and any unauthorised electronic devices (including mobile phones) are allowed during the contest.
4. Strict silence must be observed at all times in the examination hall and please be reminded that you **MAY NOT** leave your seat without permission.
5. If you have any request or enquiry, please raise your hand and wait for an invigilator.
6. Only one candidate is allowed to leave the hall at a time. You are required to return to the hall within 10 minutes or else you will automatically be disqualified from the contest.
7. Each question in the contest have been verified by experienced trainers, thus no further explanation will be given.
8. The time allowed for the paper is **60 minutes**. You must stop writing when you are told to do so.
9. You **MUST** fill in your answer in the answer sheet provided in second page of the question booklet. You will not be awarded marks for any answer written in the question booklet.
10. Please be reminded that this is a contest and not an examination, try your level best to answer all questions within the prescribed time.
11. **Please tear off the answer sheet carefully and returned to invigilator along with contest paper. Participant only can bring back the contest papers on next week.**

Scoring System

1. For **Question 1- 10, 3 marks** will be awarded for each correct answer.
   For **Question 11- 20, 4 marks** will be awarded for each correct answer.
   For **Question 21- 25, 6 marks** will be awarded for each correct answer.
   However, you will **NOT** be penalised for each incorrect answer.
2. The organizer reserves the right to disqualified the event of malpractice to differentiate between those outstanding students.
3. Contestants or a team who are disqualified from the contest will be forfeited any right to re-sit this year.

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LIVEWORKSHEETS

Division M LEVEL 3 (Year 7,8 & 9)	2015 ANSWER SHEET	

1	6	11	16	21
2	7	12	17	22
3	8	13	18	23
4	9	14	19	24
5	10	15	20	25

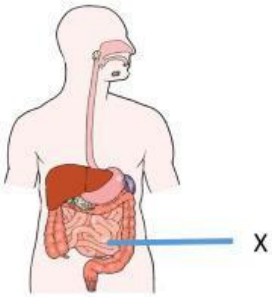
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LIVEWORKSHEETS

Division M LEVEL 3 (Year 7,8 &9)	ASIAN SCIENCES OLYMPIAD 2015 CONTEST	

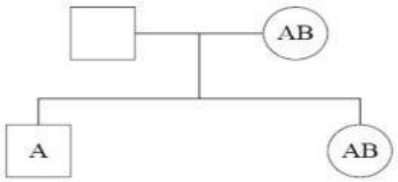
Question 1-20 are Multiple Choices Questions.

1. The diagram below shows digestive system. Which is **INCORRECT** about X?



A. X removes solid wastes from the body.
B. Internal lining of X has finger-like projections called villi.
C. Cecum, colon, rectum and anus are parts of X.
D. X helps in water reabsorption into the body

(3 Marks)



2. The pedigree chart above shows the blood group of two chidren and their mother. What could be the blood group of the father?
   A. A only
   B. A or B
   C. A,B or AB
   D. A,B,AB or O

(3 Marks)

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3. A car travels the first 100 m with a speed of 10 m s^{-1}. It then travels the next 100 m with a speed of 20 m s^{-1}. What is its average speed?
   A. 13.3 m s^{-1}
   B. 15.0 m s^{-1}
   C. 16.7 m s^{-1}
   D. 17.5 m s^{-1}

(3 Marks)

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4. Which metal reacts most vigorously with water?
   A. Ca B. K C. Mg D. Na

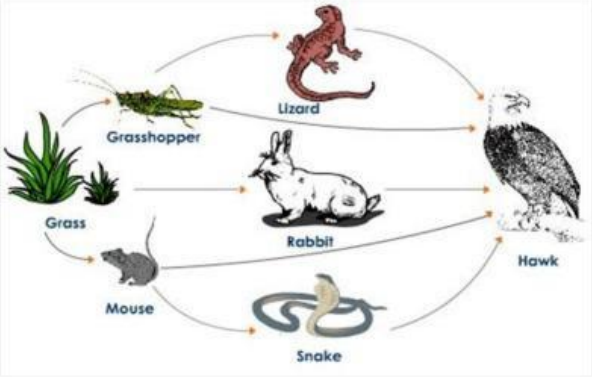
(3 Marks)

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5. Picture shown below is a food web. Which organisms are **BOTH** the prey and predator?



I Rabbit III Hawk

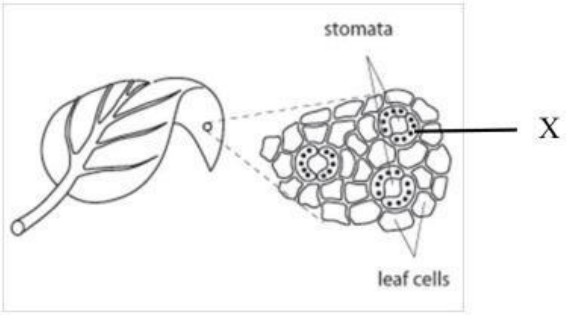
II Lizard IV Snake

A. I & II C. II & III
B. I & III D. II & IV

(3 Marks)

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6. If a person's diet is deficient in sour fruits, he or she might be at risk for
   A. Rickets C. Scurvy
   B. Beri-beri D. Night blindness (3 Marks)



7. Which of the following is **NOT** correct about X?
   A. It is a pore that is bordered by specialized cells called cover cells.
   B. X has a role in photosynthesis.
   C. X helps in transpiration.
   D. X is a stoma (3 Marks)

---

8. Which of the following is **NOT** a type of body protein?
   A. Enzymatic: Pepsin
   B. Structural: Hair
   C. Nervous: Brain
   D. Defensive: Antibodies (3 Marks)

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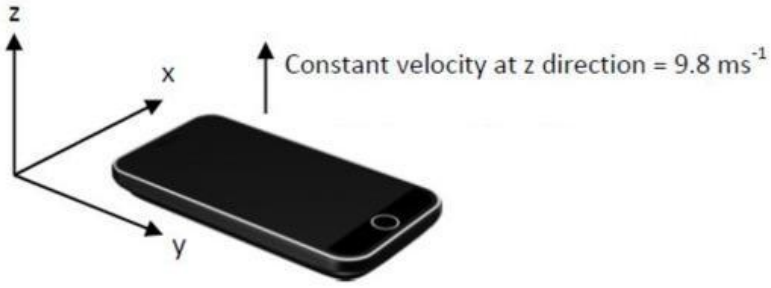


9. Aerosol spray is used widely in the world to release liquid in the form of mist when propelled out. Chlorofluorocarbons (CFCs) were once used as the propellants until the introduction of Montreal Protocol in 1989. What is the reason of banning the use of CFCs as propellants?

A. CFCs are not effective in propelling liquid.
B. CFCs are expensive as compared to other propelling agents.
C. CFCs can react with the liquid contained.
D. CFCs can cause damage to ozone layers. (3 Marks)

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10. An accelerometer is a device to measure acceleration. At the earth sea level, the acceleration due to gravity is g = 9.8 ms^{-2}. Most of the smartphones such as Android and Apple iPhone consist of a builtin accelerometer. If a smartphone is moving vertically upward at sea level with constant velocity 9.8 ms^{-1}, the instantaneous scalar readings of the x, y, and z components from the accelerometer are:



A. x = 0 g, y = 0 g, z = 0 g
B. x = 1 g, y = 0 g, z = 0 g
C. x = 0 g, y = 1 g, z = 0 g
D. x = 0 g, y = 0 g, z = 1 g (3 Marks)

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11. A man of weight *W* is standing on the ground. Which of the followings forms an action-and-reaction pair with *W*?

A. The reaction force acting on the man by the ground.
B. The force acting on the ground by the man.
C. The gravitational force acting on the man by the Earth.
D. The gravitational force acting on the Earth by the man (4 Marks)

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12. Which of the following observations is not true about the fermentation process of rice?
    A. Sour smell is produced.
    B. The rice slowly decomposes.
    C. Bubbles are formed at the water surface.
    D. The water turns clear (4 Marks)

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13. Leaded petrol was once used widely as fuel for vehicles. It was banned in 1970's and slowly be phased out with the replacement of unleaded petrol. What is the main reason behind it?
    A. Leaded petrol is expensive.
    B. Leaded petrol cannot burn completely.
    C. Lead is very toxic and cause impacts to human health.
    D. Leaded petrol will cause knocking sounds in car engines. (4 Marks)

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14. High level of mercury content was discovered in the river of Minimata city, Japan in 1956. The release of waste water containing mercury compounds by factory was banned by the city council and ordered to clean up the contaminants. What is the main reason to prevent mercury from being discharged into river?
    A. Mercury is toxic and can cause damage to nervous system.
    B. Mercury will cause the river water to be turbid.
    C. Mercury is heavy and will settle down at the river bed.
    D. Mercury is reactive and can cause explosion. (4 Marks)

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15. Which characteristic is most useful for determining that a substance is a metal?
    A. Conductivity C. Melting point
    B. Hardness D. X-ray pattern (4 Marks)

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16. A small bead is placed on the top of a semicircular glass block as shown.
    The bead is given a slight push and start sliding down along the block. Find the height at which the bead leaves the block.



    A. R/2
    B. 2R/3
    C. 3R/4
    D. 4R/5 (4 Marks)

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17. A student is asked to measure 12 ml of a liquid as precisely as possible. Which piece of equipment should she select for this task?

A. 25 ml beaker
B. 25 ml graduated cylinder
C. 25 ml conical flask
D. 25 ml volumetric flask

(4 Marks)

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18. What value should be reported for the buret reading shown?

A. 22.3 ml
B. 22.30 ml
C. 22.35 ml
D. 22.40 ml



(4 Marks)

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19. The initial activity of a radioactive isotope is 120 Bq and the half-life is 20 minutes. For a sample of the same isotope with twice the mass, the values would be:

	Initial Activitiy / Bq	Half Life / minutes
A	120	20
B	240	20
C	60	20
D	120	40

(4 Marks)

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20. Which separation technique is based on differences in the volatility of the substances to be separated?

A. Filtration
B. Distillation
C. Solvent extraction
D. Paper Chromatography

(4 Marks)

Question 21-25 are Short Answer Questions.

21. Astronomical angles are measured in fractions of a degree called minutes and seconds.
1 degree = 60 minutes of angle
1 minute = 60 seconds of angle
The angle between the Sun and Venus is measured to be:
46 degrees 12 minutes 49 seconds (46° 12' 49")

Express the angle in decimal form. (3 decimal point)
Ans : _____ °

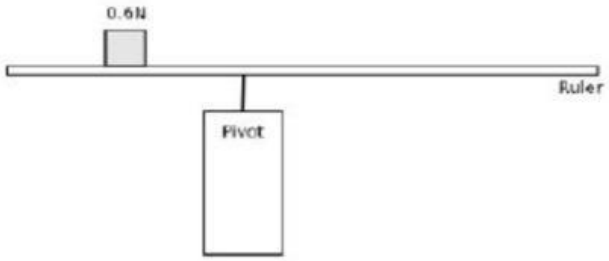
(6 Marks)

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22. A uniform ruler is 100 cm long. A 0.6 N weight is placed at the 80 cm mark. The ruler is balanced in equilibrium on a pivot placed at the 60 cm mark.



Calculate the weight of the ruler in N.

_____N .

(6 Marks)

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23. The specific heat capacity (SHC) of a material is defined as the amount of energy required to raise the temperature of 1 kg of the material by 1°C. When 1000 J of thermal energy is transferred to 200 g of material X the temperature increases by 4 °C. When 2000 J of thermal energy is transferred to 100 g of material Y the temperature increases by 8 °C.
The ratio of their specific heat capacities, SHC of X : SHC of Y is: _____

(6 Marks)

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24. The mass of a 250 ml conical flask is 128.30 grams. A vacuum pump is used to remove the air from the flask. The mass of the evacuated flaskis now measured to be 128.00 grams. (1 m^3= 1000 litres).
The best estimate of the density of air is: _____kg/m^3

(6 Marks)

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25. A swimmer dives into a completely calm 25 m long swimming pool. The ripple from the dive travels across the surface of the pool at 2.5 m/s, reflects off the far end and travels back down the pool to meet the swimmer. After diving in at the end, the swimmer swims at a steady speed that would take him 20 seconds to swim the length of the pool. The swimmer and the returning ripple meet when the swimmer has travelled approximately:_____m

(6 Marks)

THE END

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LIVEWORKSHEETS