

## English entrance exam for trainee pilots

**Part One: Read the passage of “Ready for Anything” and answer the questions that follow.**

### *Ready for Anything!* by Jean Lawler

Justin was always prepared. His **motto** was "Never throw anything out, you never know when it might **come in handy**." His bedroom was so full of flat bicycle tires, bent tennis rackets, deflated basketballs, and games with missing pieces that you could barely get in the door. His parents **pleaded** with him to clean out his room.

"What use is a fish tank with a hole in the bottom?" his father asked. But Justin simply smiled and repeated his motto, "Never throw anything out, you never know when it might come in handy."

When Justin was away from home, he always carried his blue backpack. He liked to think of it as a smaller version of his bedroom—a place to store the many objects that he collected. It was so worn and **stretched** that it hardly resembled a backpack anymore. It was full of the kind of things that seemed unimportant, but when used with a little imagination, might come in handy.

Justin had earned a **reputation** for figuring things out and getting people out of otherwise hopeless situations. Many of his classmates and neighbors sought him out when they needed help with a problem. On the first day of school, his friend Kenny, came looking for Justin.

"Do you think you have something in your bag that could help me remember my locker combination?" he asked. "I lost the scrap of paper it was written on. I have science class in two minutes and if I'm late on the first day it'll make me look bad for the rest of the year." Kenny looked genuinely worried.

"Relax," Justin said, taking his backpack off and unzipping the top. "Remember how you borrowed my notebook in homeroom to write the combination down? Well, I know how we can recover what you wrote."

He took the notebook and a soft lead pencil out of his bag. The page that Kenny had written on had left faint **indentations** on another page in the notebook. Justin held the pencil on its side and rubbed it lightly over the indentations. Slowly but surely the numbers of the locker combination appeared in white, set off by the gray pencil rubbings.

"That's amazing!" Kenny said. "I owe you one." And he **dashed off** to open his locker.

During science class, Mr. Tran was lecturing on the structure of the solar system using a model. He made a sudden gesture and the model fell apart. Planets and rings and connector rods went everywhere, rolling and clattering and disappearing under desks. The students **scrambled** around on the floor for ten minutes and were finally able to recover every piece except one—a connector rod that was lodged in a **crack** between two lab stations.....

"If we had a magnet," said Mr. Tran, "we could easily **coax** it **out** that way. But I loaned all of the magnet kits to the elementary school yesterday."

Questions: What do the following words mean according to the extract given above?

1. **Motto**

- A) Slogan      B. plan      C. aim      D. strategy

2. **come in handy**

- A. Portable      B. important      C. suitable for use      D. challenge

3. **Pleaded**

- A. Reject      B. request      C. demand      D. denied

4. **Stretched**

- A. Relaxed      B. fraught      C. enjoyed      D. demanded

5. **Reputation**

- A. Attitude      B. responsibility      C. irritation      D. standing

6. **Indentations**

- A. Groove      B. print      C. copy      D. duplication

7. **dashed off**

- A.** Hurried      B. neat      C. dirty      D. slow down

8. **Scrambled**

- A. plod      B. slog      C. descend      D. rush

9. **Crack**

- A. regardless      B. repair      C. fracture      D. remembrance

10. **Coax sth out**

- A. Drill      B. fix      C. get hold of      D. miss

## Part Two: Sentence Completion

**Instruction: Complete the following sentences by choosing the correct answer from the options given.**

**1. Dentists strongly suggest brushing teeth using toothpaste to ..... them from decaying.**

- A) Defer                      B) Protect                      C) Guard                      D) Waste

**2. He has recently ..... drawing to make himself relaxed.**

- A) Adopted                      B) Relinquished                      C) Adjusted                      D) Benefited

**3. Lots of ..... crafts like weaving are slowly being revived.**

- A) Habitual                      B) Vivid                      C) Hard                      D) Traditional

**4. I ..... whether our opponent company will make any profit at all.**

- A) Expect                      B) Claim                      C) Doubt                      D) Admit

**5. The rise in the prices ..... her to sell her share for a nice profit.**

- A) Achieved                      B) Annoyed                      C) Meditated                      D) Advised

**6. Should that company wish to attract workers, it ought to ..... the pay.**

- A) Lower                      B) Raise                      C) Spread                      D) Rise

**7. The kidney transplant operation was ..... complicated, so the operating team had to take special care to ensure its success.**

- A) Slightly                      B) Nearly                      C) Immediately                      D) Extremely

**8. Before the invention of refrigeration, the ..... of fish and meat must have been a problem.**

- A) Treatment                      B) Preservation                      C) Addition                      D) Presentation

**9. The police finally arrested the ..... criminal.**

- A) Famous                      B) renowned                      C) respectable                      D) notorious

**10. I had to brake suddenly when the other driver didn't signal to show his ..... to turn left.**

- A) Plan                      B) Intention                      C) Promise                      D) Precaution

**11. We are not sure that he will be able to ..... the shock of going bankrupt.**

- A) Get over                      B) Put through                      C) Take up                      D) Depend upon

**12. He should spend nearly two years working in Asia so that he can discover how things ..... overseas.**

- A) Manage                      B) Execute                      C) Operate                      D) Propose

**13. Do you realize that it takes years to ..... as a teacher?**

- A) Qualify                      B) Complete                      C) Accept                      D) Regard

**14. Because the water there is ....., the area has been evacuated based on an official decree.**

- A) Purified                      B) diverted                      C) predicted                      D) contaminated

**15. The accident would not have occurred but the truck driver had been ..... .**

- A) Alert                      B) Negligent                      C) Careful                      D) Discrete

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### **Part Three: Grammar and Usage:**

**Instruction: Choose the correct word from the options given to fill in the gap in each sentence below.**

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1. If she \_\_\_\_\_ his financial situation, she would have helped him out

- A) knew    B) had been knowing    C) had known    D) have known

2. I'll \_\_\_\_\_ their cat while they are away on holiday.

- A) be looking into    B) be looking at    C) be looking after    D) be looking over

3. He made his children \_\_\_\_\_ their homework every afternoon.

- A) do    B) to do    C) studied    D) to study

4. The test was \_\_\_\_\_ difficult she had problems finishing it on time.

- A) such    B) a    C) as    D) so

5. By the time she arrives, we \_\_\_\_\_ our homework.

- A) finish    B) will have finished    C) will finish    D) were finished

6. She \_\_\_\_\_ lunch by the time we arrived.

- A) had finished    B) finished    C) have finished    D) finishing

7. The sun \_\_\_\_\_ at 9 last night.

- A) sat    B) setted    C) set    D) was setting

8. When I stopped \_\_\_\_\_ to Mary, she was picking some flowers in her garden.

- A) speaking    B) speak    C) to speak    D) spoke

9. Despite \_\_\_\_\_ hard, he failed the exam.

- A) he studied    B) he has studied    C) studying    D) study

10. That room \_\_\_\_\_ for a meeting today.  
 A) is used                      B) is being used                      C) used                      D) is using
11. We \_\_\_\_\_ tennis every day when we were young.  
 A) use to play                      B) would play                      C) were playing                      D) were used to play
12. He'll give you a call as soon as he \_\_\_\_\_.  
 A) will arrive                      B) arrives                      C) is arriving                      D) is going to arrive.
13. Had he been so decisive none of these \_\_\_\_\_ happened?  
 A) Would have                      B) Will                      C) Would                      D) May

#### Part Four: Reading Comprehension

Read the following text carefully and answer the questions that follow accordingly.

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##### The New Airbus

The Airbus A380 is a double-deck, wide-body, and four-engine airliner manufactured by the European corporation Airbus, a subsidiary of EADS. The largest passenger airliner in the world, the A380 made its maiden flight on 27 April 2005 from Toulouse, France, and made its first commercial flight on 25 October 2007 from Singapore to Sydney with Singapore Airlines. The aircraft was known as the *Airbus A3XX* during much of its development phase, but the nickname *Superjumbo* has since become associated with it.

The A380's upper deck extends along the entire length of the fuselage, and its width is equivalent to that of a wide body aircraft. This allows for an A380-800's cabin with 5,146 square feet of floor space; 49% more floor space than the next-largest airliner, the Boeing 747-400 with 3,453 square feet, and provides seating for 525 people in a typical three-class configuration or up to 853 people in all-economy class configurations. The postponed freighter version, the A380-800F, is offered as one of the largest freight aircraft, with a payload capacity exceeded only by the Antonov An-225. The A380-800 has a design range of 15,200 km, sufficient to fly from New York to Hong Kong for example, and a cruising speed of Mach 0.85 (about 900 km/h or 560 mph at cruising altitude).

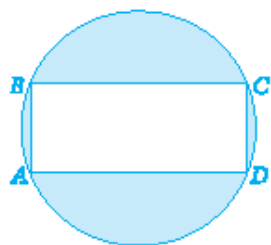
1. Which one is not true about Airbus A380
  - A. upper deck extends along the entire length of the fuselage
  - B. manufactured by the European corporation Airbus
  - C. is one of the largest freight aircraft,
  - D. made its first commercial flight on 25 October 2007 from Singapore to Sydney
2. According to the text the Antonov An-225
  - A. has a design range of 15,200 km
  - B. Its payload capacity is exceeded by A380
  - C. Its payload capacity is exceeded by A380-800F
  - D. Its payload capacity exceeds the A380-800F

3. Which id different
- A. The Airbus A380
  - B. *Superjumbo*
  - C. *Airbus A3XX*
  - D. A380-800F
4. Which one is true according to the text?
- A. Boeing 747-400 has more floor space than Airbus A380
  - B. Boeing 747-400 has 49% more floor space than the next-largest airliner the Airbus A380
  - C. The Boeing 747-400 can seat 853 people in all-economy class configurations
  - D. 853 people in all-economy class configurations
5. Choose the correct match form the options given below for: **Commercial flight, maiden flight, Mach 0.85**
- A. 25 October 2007, 27 April 2005, cruising speed
  - B. 27 April 2005, cruising speed, 25 October 2007
  - C. Cruising speed, 27 April 2005, 25 October 2007
  - D. 20 October 2007, 27 April 2005, cruising speed

## **Part II: Mathematics**

**Directions:** Choose the best alternative among the given choices for the following 25 questions.

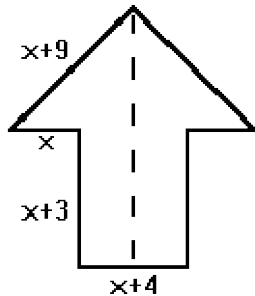
1. At a high school game the price of admission was \$0.25 for each adult and \$0.10 for each child. If 397 persons attended the game and the gate receipts add up to \$56.80, how many adults attended?  
A. 114      B. 283      C. 252      D. 125
2. A plane has airspeed of 300km/hr. It flies directly into a head wind for 48 min and returns along the same route in 42 min. What is the wind speed in km/hr?  
A. 375      B. 429      C. 60      D. 20
3. Rectangle ABCD is inscribed in the circle shown below. If the length of side AB is 5 and the length of side BC is 12, what is the area of the shaded region?



- A. 40.8      B. 53.1      C. 72.7      D. 78.5
4. A train usually makes its run in 2hour25minutes at an average speed of 63mile/h. How long would it take if the speed were reduced to 51mile/h?  
A. 3h 25m      B. 3h 35m      C. 2h 09m      D. 2h 59m
  5. Two stations A and B are at a distance of 80 km from each other. An automobile starts from A and a bus starts from B at the same time. If they travel in the same direction, they meet after 4 hours and if they travel towards each other, they meet after one hour. What is the speed of the automobile?  
A. 30      B. 40      C. 50      D. 60      E. 35
  6. What is the speed of the bus?  
A. 30      B. 40      C. 50      D. 60      E. 35
  7. The numbers  $x$ ,  $y$ ,  $z$  and  $w$  have an average equal to 25. The average of  $x$ ,  $y$  and  $z$  is equal to 27. Find  $w$ .  
A. 23      B. 19      C. 25      D. 29
  8. A is a constant. Find A such that the equation  $2x + 1 = 2A + 3(x + A)$  has a solution at  $x = 2$ .  
A.  $1/5$       B.  $-1/5$       C. 5      D. -5
  9. Find the length and width of a rectangle that has a length 3 meters more than its width and a perimeter equal in value to its area ?  
A.  $L = 2, W = 3$       B.  $L = 6, W = 3$       C.  $L = 3, W = 2$       D.  $L = 5, W = 3$

10. Given the symmetric shape below with a known perimeter of 77, find the area of the shape.

A. 289.84    B. 238.45    C. 345.5    D. 200



11. A real estate agent received a 6% commission on the selling price of a house. If his commission was \$8,880, what was the selling price of the house?

A. \$53280    B. \$1480    C. \$148,000    D. \$8880

12. An electric motor makes 3,000 revolutions per minutes. How many degrees does it rotate in one second?

A. 180,000 degrees / second    B. 18,000 degrees / second

C. 50 degrees / second    D. 500 degrees / second

13. If a tire rotates at 400 revolutions per minute when the car is traveling 72km/h, what is the circumference of the tire?

A. 0.3meters    B. 333.3meters    C. 3meters    D. 33.3meters

14. In a shop, the cost of 4 shirts, 4 pairs of trousers and 2 hats is \$560. The cost of 9 shirts, 9 pairs of trousers and 6 hats is \$1,290. What is the total cost of 1 shirt, 1 pair of trousers and 1 hat?

A. \$150    B. \$170    C. \$200    D. \$250

15. Four children have small toys. The first child has  $\frac{1}{10}$  of the toys, the second child has 12 more toys than the first, the third child has one more toy of what the first child has and the fourth child has double the third child. How many toys are there?

A. 20 toys    B. 25 toys    C. 40 toys    D. 30 toys



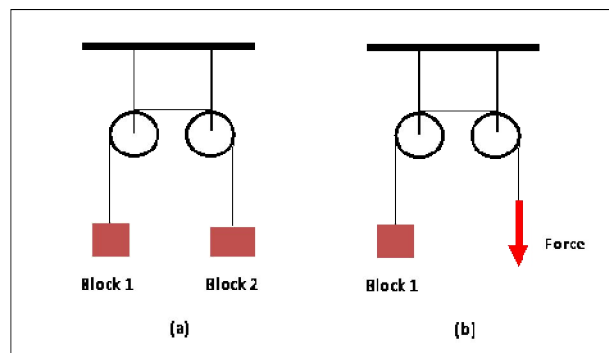
16. A class average mark in an exam is 70. The average of students who scored below 60 is 50. The average of students who scored 60 or more is 75. If the total number of students in this class is 20, how many students scored below 60?
- A. 5      B. 4      C. 6      D. 3
17. An airplane flies against the wind from A to B in 8 hours. The same airplane returns from B to A, in the same direction as the wind, in 7 hours. Find the ratio of the speed of the airplane (in still air) to the speed of the wind.
- A. 0.06    B. 15    C. 8/7    D. none
18. Find the point(s) of intersection of the parabola with equation  $y = x^2 - 5x + 4$  and the line with equation  $y = 2x - 2$
- A. (1, 0) and (6, 20)    B. (1, 1) and (6, 10)  
C. (2, 0) and (6, 10)    D. (1, 0) and (6, 10)
19. Find the constant k so that :  $-x^2 - (k + 7)x - 8 = -(x - 2)(x - 4)$
- A. 13      B. -13      C. 2      D. -2
20. Factor the expression  $6x^2 - 13x + 5$
- A.  $(3x - 4)(2x - 1)$     B.  $(2x - 5)(2x - 1)$     C.  $(x - 5)(2x - 1)$     D.  $(3x - 5)(2x - 1)$
21. Find all zeros of the polynomial  $P(x) = x^3 - 3x^2 - 10x + 24$  knowing that  $x = 2$  is a zero of the polynomial.
- A. 4, -3 and -2    B. 4, 3 and 2    C. 4, -3 and 2    D. -4, -3 and 2
22. If x is an integer, what is the greatest value of x which satisfies  $5 < 2x + 2 < 9$ ?
- A. 3      B. 2      C. 5      D. 4
23. Sets A and B are given by:  $A = \{2, 3, 6, 8, 10\}$ ,  $B = \{3, 5, 7, 9\}$ . Find the intersection of sets A and B.
- A. {3,5}      B. {3}      C. {2,5,9}      D. {7}
24. Simplify  $|-x^2 + 4x - 4|$ .
- A.  $-(x - 2)^2$     B.  $(x - 2)^2$     C.  $(x - 3)^2$     D.  $-(x - 3)^2$
25. Simplify  $8x^3 / 2x^{-3}$
- A.  $4x^6$     B. 4    C.  $16x^6$     D. None

### Part III: Physics

Choose the best alternative among the given choices for the following 25 physics questions.

1. A person goes out for a bike ride to a nearby town. A record of the trip is as follows: 30 minutes at 30 km/hour, 15 minutes at 40 km/h, 5 minutes at 0 km/h for a break, and 20 minutes at 15 km/h. What is the distance the person traveled?  
A. 1800km    B. 30km    C. 300km    D. 180km
2. Referring question number 1, what is the average velocity?  
A. 27.5km/h    B. 35.5km/h    C. 25.7km/h    D. 30km/h
3. A car travels up a hill at a constant speed of 37 km/h and returns down the hill at a constant speed of 66 km/h. calculate the average speed for the whole trip.  
A. 47.4km/h    B. 51.5km/h    C. 40km/hr    D. 45km/hr
4. A 8 kg block is at rest on a horizontal floor. If you push horizontally on the 8 kg block with a force of 20 N, it just starts to move.  
A. 0.11    B. 0.022    C. 0.31    D. 0.255
5. Referring question number 4 if a 10.0 kg block is stacked on top of the 8 kg block what is the magnitude F of the force, acting horizontally on the 8 kg block as before, that is required to make the two blocks start to move? (take  $g = 9.8\text{m/s}^2$ )  
A. 45N    B. 19.4N    C. 3.88N    D. 54.68N
6. A car is accelerating at  $12\text{m/s}^2$ . Find its acceleration in  $\text{km/h}^2$ .  
A. 15520km/hr<sup>2</sup>    B. 155520 km/hr<sup>2</sup>    C. 12960 km/hr<sup>2</sup>    D. None
7. It takes you 9.5 minutes to walk with an average velocity of 1.2 m/s to the north from the bus stop to museum entrance. What is your displacement?  
A. 11.4m    B. 72m    C. 5415m    d. 541.5m

8. Nerve impulses typically travel through the body at about 150 miles/hour. Imagine dropping a brick from one meter onto your big toe. Compare the time it takes for the brick to fall with the time it takes for the signal to get from your toe to your brain. Assume you are 1 meter tall. (take  $g = 9.8\text{m/s}^2$ )
- It takes 17.3 times longer for the brick to fall than it takes for the signal to reach your brain.
  - It takes 20 times longer for the brick to fall than it takes for the signal to reach your brain.
  - It takes 15.3 times longer for the brick to fall than it takes for the signal to reach your brain.
  - None.
9. As part *a* of the drawing shown, two blocks are connected by a rope that passes over a set of pulleys. The block 1 has a weight of 400 N, and the block 2 has a weight of 600 N. The rope and the pulleys are mass less and there is no friction. What is the acceleration of the lighter block?



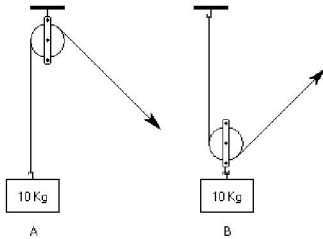
- $2.5\text{m/s}^2$
  - $1.96\text{m/s}^2$
  - $3.96\text{m/s}^2$
  - $3\text{m/s}^2$
10. A car is initially traveling due north at 23 m/s. Find the velocity of the car after 4 s if its acceleration is  $2\text{m/s}^2$  due north.
- 46m/s
  - 36m/s
  - 15m/s
  - 31m/s
11. For question number 10, Find the velocity of the car after 4 s if its acceleration is instead  $2\text{m/s}^2$  due south
- 15m/s
  - 31m/s
  - 36m/s
  - 46m/s
12. If a 5 tons beam is raised 6 meters in 6 seconds, what is the work done?
- 1,764,000J
  - 294,000J
  - 2,940,000J
  - 176,400J

13. A tension of 6000 Newton's is experienced by the elevator cable of an elevator moving upwards with an acceleration of  $2\text{m/s}^2$ . What is the mass of the elevator? (take  $g = 9.8\text{m/s}^2$ )  
 A. 3000kg      B. 12000kg      C. 508kg      D. 612.25kg
14. A bicycle is moving at 10 m/s. What is the angular speed of its tires if their radius is 30 cm?  
 A. 300rad/sec      B. 30rad/sec      C. 9000rad/sec      D. 33rad/sec
15. A soccer ball of diameter 35 cm rolls without slipping at a linear speed of 2 m/s. Though how many revolutions has the soccer ball turned as it moves a linear distance of 20 m?  
 A. 1400 turns      B. 350 turns      C. 18 turns      D. 180turns
16. A block of mass 5 kg lies on a horizontal table. The block is at rest. The only forces acting on the block are the force due to gravity and the normal force from the table. What is the magnitude of the friction force? (take  $g = 9.8\text{m/s}^2$ )  
 A. 49N      B. 10N      C. 4.9N      D. None
17. A car ( $m = 2000\text{ kg}$ ) is parked on a road that rises 20 degrees above the horizontal. What are the magnitudes of (1) the normal force and (2) the static frictional force respectively that the ground exerts on the tires? (given  $\sin 20 = 0.342$ , and  $\cos 20 = 0.939$ )  
 A.  $1.8 \times 10^4\text{N}$ ,  $6.7 \times 10^3\text{N}$       B.  $6.7 \times 10^3\text{N}$ ,  $1.8 \times 10^4\text{N}$   
 C.  $3.4 \times 10^4$ ,  $2.8 \times 10^3\text{N}$       D. None
18. A child throws a ball downward from a tall building. Note that the ball is thrown, not dropped and disregard air resistance. What is the acceleration of the ball immediately after it leaves the child's hand?  
 A.  $9.8\text{m/s}^2$   
 B. the initial velocity of the ball must be known to determine its acceleration  
 C. both the initial and final velocities must be known to determine its acceleration  
 D. all the mass, the initial and final velocities must be known to determine its acceleration
19. The tips of the blades in a food blender are moving with a speed of 20 m/s in a circle that has a radius of 0.06 m. How much time does it take for the blades to make one revolution?  
 A. 0.38sec      B. 0.019sec      C. 2sec      D. 0.2sec
20. An aircraft has a lift-off of speed, 120km/h. What minimum constant acceleration does the aircraft require if it is to be airborne after a takeoff run of 240m?  
 A.  $2.3\text{m/s}^2$       B.  $3.2\text{m/s}^2$       C.  $33\text{m/s}^2$       D.  $23\text{m/s}^2$

## Mechanical Reasoning

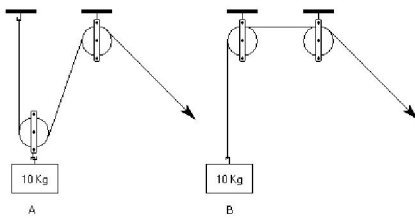
### Choose the Best Answer and Mark on the Answer Sheet

1) Which weight requires the least force to move?



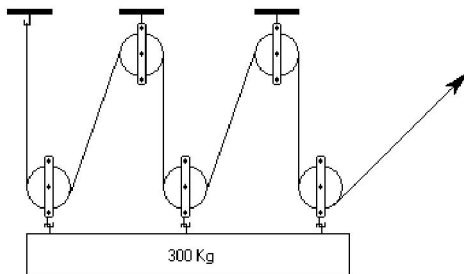
- A) A      B) B      C) Both require the same force

2) Which weight requires the least force to move?



- A) A      B) B      C) Both require the same force

3) How much force is required to move the weight?



- A) 100 kg      B) 150 kg      C) 50 kg      D) 60 kg

4) If gear X turns clockwise at a constant speed of 10 rpm. How does gear Y turn?



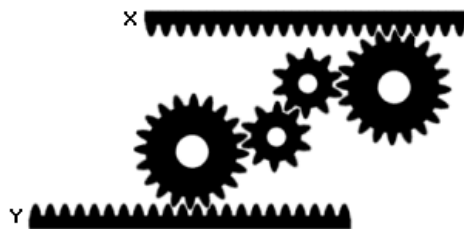
- A** anti c/w 10 rpm      **B** c/w 10 rpm      **C** c/w 5 rpm      **D** anti c/w 5 rpm

5) If gear X turns clockwise at a constant speed of 10 rpm. How does gear Y turn?



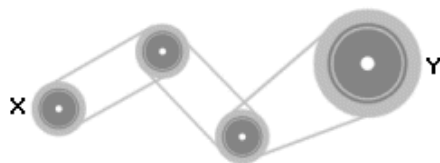
- A** anti c/w 10 rpm      **B** c/w 10 rpm      **C** c/w 5 rpm      **D** anti c/w 5 rpm

6) If bar Y moves left a constant speed. How does bar X move?



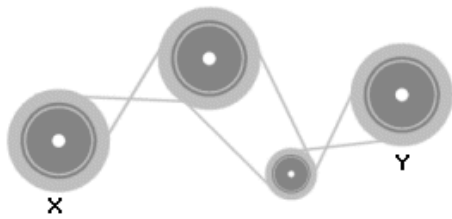
- A** Left, Faster      **B** Right, Same      **C** Left, Slower      **D** Left, Same

7) If drive wheel X rotates clockwise at a speed of 10 rpm. How does wheel Y turn?



- A** anti c/w faster      **B** c/w slower      **C** c/w faster      **D** anti c/w same

8) If drive wheel X rotates clockwise at a speed of 10 rpm. How does wheel Y turn?



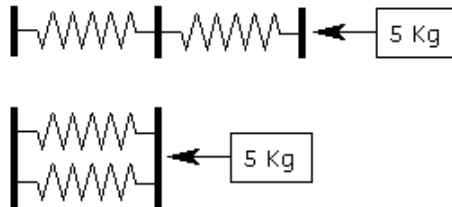
**A**  
anti c/w faster

**B**  
c/w slower

**C**  
c/w faster

**D**  
anti c/w slower

9) A force of 5 Kg compresses the springs in series 10cm. What will be the total distance that the springs in parallel are compressed?



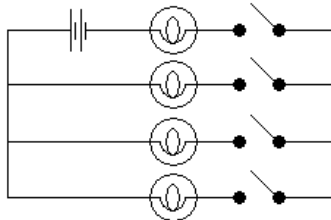
A) 10 cms

B) 2.5 cms

C) 5 cms

D) 7.5 cm

10) How many switches need to be closed to light up one bulb?



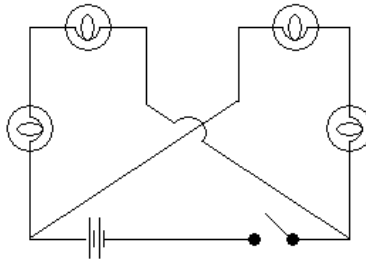
A) 1

B) 2

C) 3

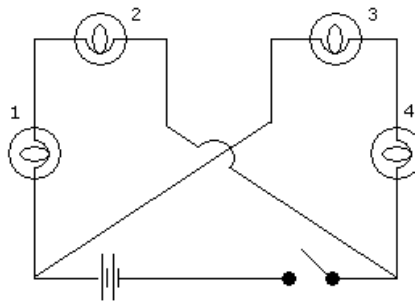
D) 4

11). How many bulbs will light up when the switch is closed?



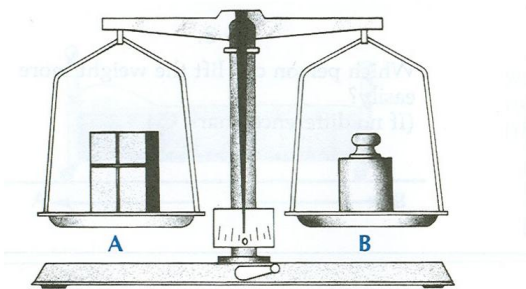
- A) 1    B) 2    C) 3    D) 4

12). If bulb 1 is removed, how many bulbs will light up when the switch is closed?



- A) 1    B) 2    C) 3    D) 0

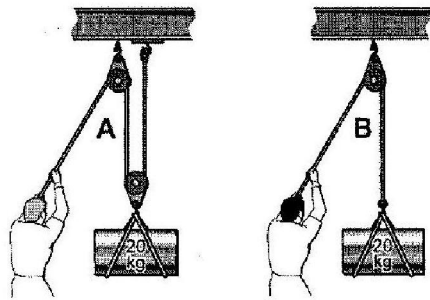
13) Which weights more? (If equal, mark C.)



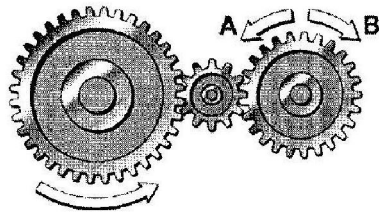
- A.) A    B) B    C) C



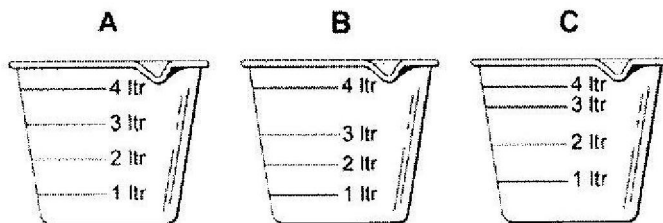
14) Which person must pull harder? ( if no difference, mark C)



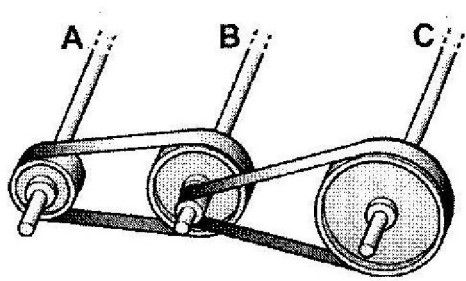
15) When the left- hand gear turns in the direction shown, which way does the right hand one turn? (if either, mark C)



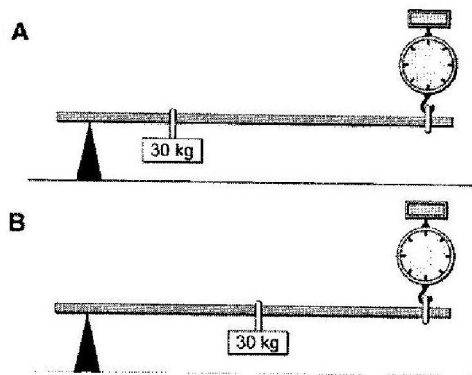
16) Which measure is marked properly?



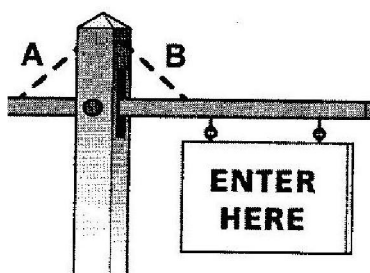
17) Which shaft will turn most quickly?



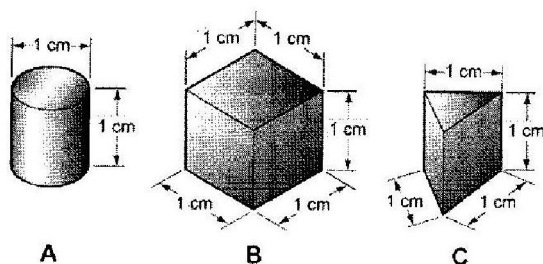
18) In which picture will the scales read lower (less weight)? (If equal mark C)



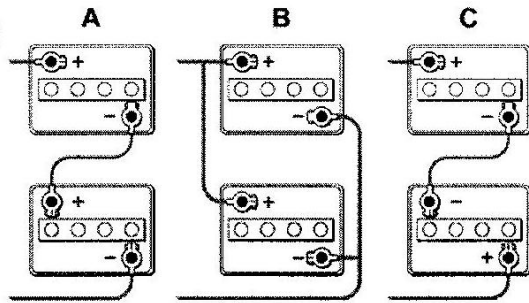
19) Where should a chain be attached to hold up the sign? (If either, mark C)



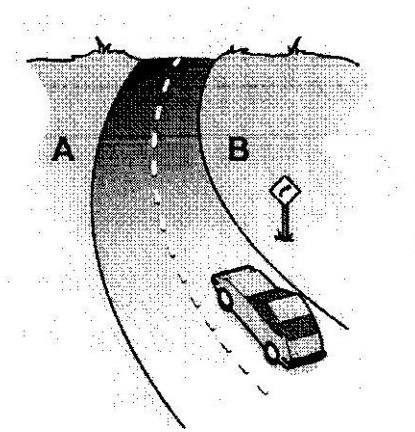
20) Which weighs most?



21) Which diagram shows two 6-volt batteries connected to give 12volts?



22) Of which side of the road is the car least likely to skid? (If no difference, mark C

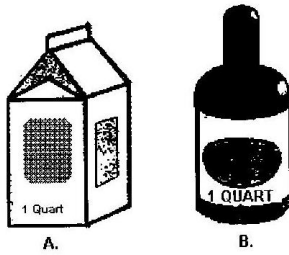


23) Which direction will pulley X be going?

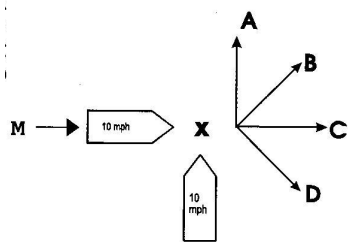


A) Same as B      B) Same as C      C) Same as A      D. Same as B and C

24) Which holds more? (C if equal)



25) In which direction will boat M go if the two boats collide at point X?

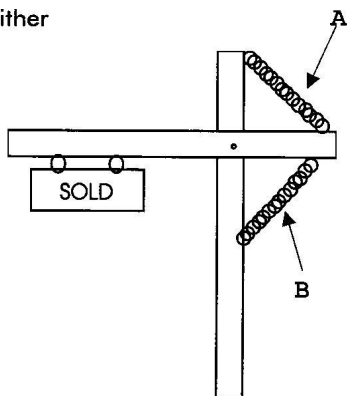


- A. A      B. B      C. C      D. D

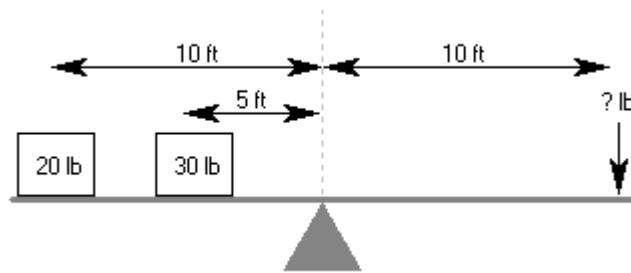
26) Which chain will hold the sign?

- A. A      B. B      C. Both      D. Neither

d. Neither

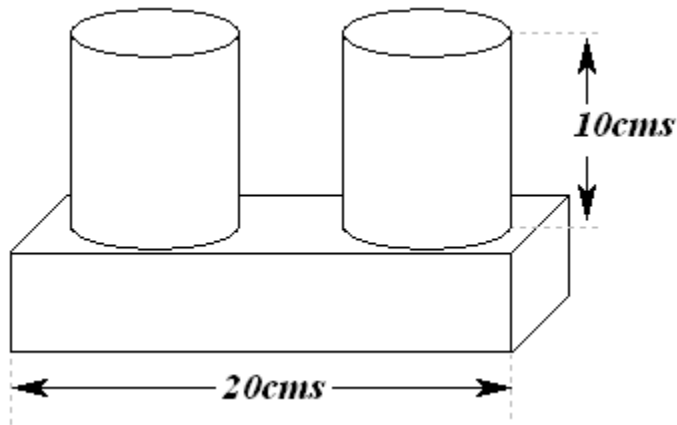


27) How much force is required to lift the weights?



- A) 25lbs      B) 35lbs      C) 40lbs      D) 45lbs

28) The sketch shows a component made from 5cmX5cm square bar and 5cm diameter rod. The density of steel is 8g per cubic centimeter. For shipping purposes the components are packed into individual boxes before being packed into shipping crates measuring approximately 0.25m x 0.3m x 0.4m. Shipping crates are packed on pallets to a maximum weight of 800 Kg.



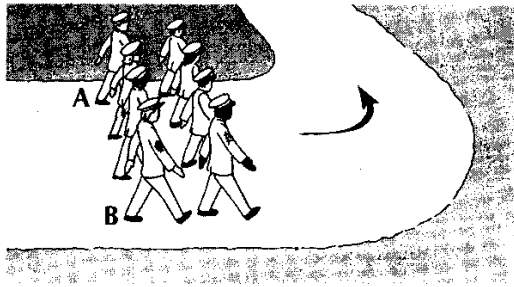
What is the approximate total volume of the component in cubic centimeters?

- |          |          |          |          |
|----------|----------|----------|----------|
| <b>A</b> | <b>B</b> | <b>C</b> | <b>D</b> |
| 892      | 788      | 967      | 422      |

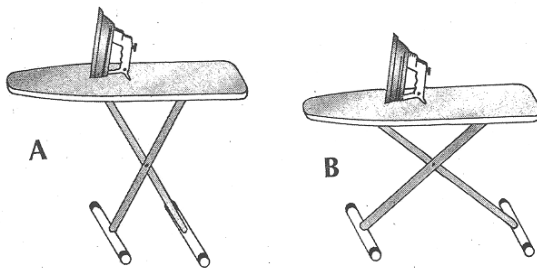
29) What is the approximate weight of the component for the above question?

- |          |          |          |          |
|----------|----------|----------|----------|
| <b>A</b> | <b>B</b> | <b>C</b> | <b>D</b> |
| 72.4 Kg  | 7.14 Kg  | 7.34 Kg  | 14.4 Kg  |

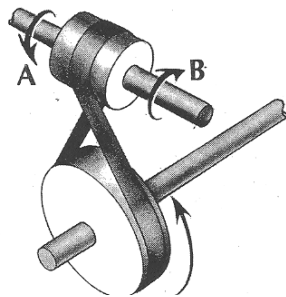
30) When these cadets march around the corner, which one goes farther? (If no difference, mark C.)



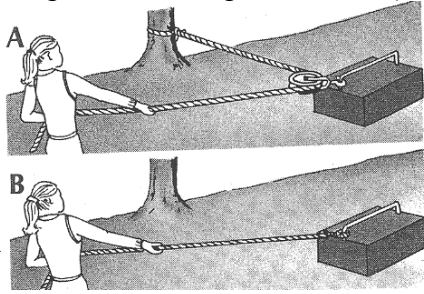
31) Which ironing board will tip over more easily? (If no difference, mark C.)



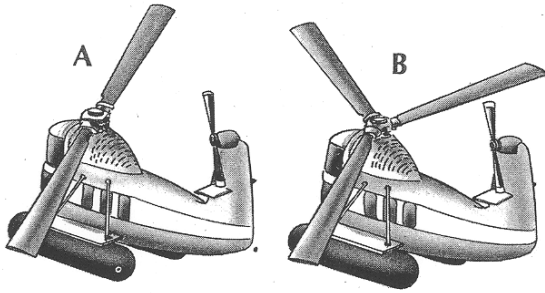
32) When the bottom pulley turns in the direction shown, which way does the top pulley turn? (If either, mark C)



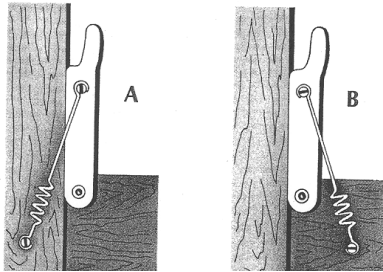
33) Which person has to pull harder? (If no difference, mark C.)



34) Which helicopter can lift the heavier load? (If equal, mark C.)



35) In which picture will the spring hold the handle where it is now? (If both, mark C.)



GOOD LUCK

### Mathematics answer

1. A
2. D
3. A
4. D
5. C
6. A
7. b
8. b
9. b
10. a
11. c
12. b
13. c
14. a
15. d
16. b
17. b
18. d
19. b
20. d
21. c
22. a
23. b
24. b
25. a

### physics answers

1. b
2. c
3. a
4. d
5. a
6. b
7. c
8. a
9. b
10. d
11. a
12. b
13. c
14. d
15. c
16. d
17. a
18. a
19. b
20. a



Mechanical reasoning answers

1. b
2. .a
3. .c
4. a
5. d
6. d
7. b
8. d
9. c
- 10.b
- 11.d
- 12.b
- 13.c
- 14.b
- 15..a
- 16.c
- 17.a
- 18.a
- 19.b
- 20.b
- 21.a
- 22.b
- 23.c
- 24.c
- 25.b
- 26.b
- 27.b
- 28.a
- 29.b
- 30.b
- 31.a
- 32.b
- 33.b
- 34.b
- 35.a





