

# Standardized House Meeting Examination for Aptitude and Reasoning (SHMEAR)

## Section 1. Analogies.

5 minutes

1. PRIYANKO : OTHER VOCAL ARTISTS ::

- (A) stock : savings
- (B) oriole : bird
- (C) squirrel : tree
- (D) achilles : other warriors
- (E) arrogance : persecution

2. MAX GALLOP : ACCREDATION ::

- (A) ant : insect
- (B) shark : great white
- (C) gorbachev : birthmark
- (D) #23 fork : utensil
- (E) former yugoslav republic of macedonia : federated states of micronesia

3. BOB KNOX : COMPUTER ::

- (A) infant : thalidomide
- (B) stump : snell
- (C) doctor : leper
- (D) dove : pigeon
- (E) society : division of labor

4. MIDNIGHT SOCCER : TENNIS COURT ::

- (A) food : restaurant ::
- (B) robot : rap
- (C) sacrifice : ba'al
- (D) race : stable
- (E) alligator : eyeball

5. BRUCE : STAYING UP ALL NIGHT WRITING THIS ::

- (A) imperial germany : not violating dutch neutrality
- (B) napoleon : dividing his forces at austerlitz
- (C) colonials : retreating at cowpens
- (D) prussia : the emz dispatch
- (E) united states navy : adopting the screw propeller

## Section 2. Analytical Reasoning -- 18 minutes

Exactly five house officers -- a President, a Condom Tsar, a Section Rep, an At-Large Rep, and a Historian -- will give an announcement at a House meeting. Each officer makes only one announcement, and no two or more officers make an announcement concurrently. Each officer is either from section 1 or else from section 5. The following conditions apply:

No officer from Section 1 makes an announcement immediately before or immediately after any other officer from Section 1

Exactly three officers are from Section 1

The Condom Tsar is from Section 1

Exactly two officers make announcements between the announcement made by the Section Rep and the announcement made by the At-Large Rep

The Section Rep speaks immediately before or immediately after the President

6) Which of the following is a valid ordering of announcements, from first to fifth?

- (A) Section Rep, Condom Tsar, President, At-Large Rep, Historian
- (B) Condom Tsar, Section Rep, Historian, At-Large Rep, President
- (C) Condom Tsar, Section Rep, President, President, At-Large Rep
- (D) At-Large Rep, Historian, Condom Tsar, Section Rep, President
- (E) Historian, Section Rep, President, Condom Tsar, At-Large Rep

7) Which of the following CANNOT be true?

- (A) the Condom Tsar has the second announcement
- (B) the President has the third announcement
- (C) the President speaks before the Historian
- (D) the President and the At-Large Rep are separated by exactly three speakers
- (E) the Condom Tsar has the third announcement

8) If the President speaks before both the Section and At-Large Reps, each of the following MUST be false except:

- (A) the Condom Tsar has the first announcement
- (B) the Historian speaks immediately after the Section Rep
- (C) the Historian has the third announcement
- (D) the Historian has the fifth announcement
- (E) the Condom Tsar has the third announcement

9) If the Historian speaks third, which of the following, if true, is sufficient to know the full order of announcements from first to fifth?

- (A) The President and the Historian speak consecutively, though not necessarily in that order
- (B) Exactly two speakers separate the Condom Tsar from the Historian
- (C) the Section Rep does not speak fifth
- (D) Exactly two speakers separate the President from the At-Large Rep
- (E) the President does not speak last

10) Suppose a sixth officer, a Treasurer from Section 5, also makes an announcement. If all other conditions remain in place, which of the following CANNOT be true?

- (A) the Treasurer speaks first, and the Historian is from Section 1
- (B) the Treasurer speaks second, and the Section Rep is from Section 1
- (C) the Treasurer speaks third, and the Condom Tsar speaks first
- (D) the Treasurer speaks fourth, and the Condom Tsar speaks third
- (E) the Treasurer speaks third, and the Condom Tsar speaks fifth

Exactly eight Hitchcock residents -- Bob, Margot, Chris, Johnny, Priyanko, Katy, Danny, and Neil -- attend either the Stuffed Animal Party or else the Bollywood Night. The following conditions apply:

Margot does not attend the same event as Danny

Neil attends the Stuffed Animal Party

Margot attends the same event as Chris

If Priyanko attends Bollywood Night, Margot attends the Stuffed Animal Party

If Katy attends the stuffed animal party, she does not attend the same event as Priyanko

11) Which of the following could be a complete and accurate list of all those attending the stuffed animal party?

(A) Margot, Neil, Katy, Johnny

(B) Neil, Katy, Johnny, Bob

(C) Margot, Chris, Katy, Johnny

(D) Margot, Neil, Chris, Katy

(E) Margot, Chris, Katy, Priyanko

12) If as few of the residents as possible attend the stuffed animal party, exactly how many of the residents attend Bollywood Night?

(A) Seven

(B) Six

(C) Five

(D) Four

(E) Eight

13) If Danny and Neil attend the same event, which of the following CANNOT be true?

(A) Katy and Chris attend different events

(B) Bob and Johnny attend different events

(C) Exactly five residents attend the stuffed animal party

(D) Exactly five residents attend Bollywood Night

(E) Priyanko and Neil attend the same event

14) The fewest number of residents who can attend a single event is:

(A) five

(B) four

(C) three

(D) two

(E) one

15) If a third event, the Contra Dance, is added and Katy attends the Stuffed Animal Party, and all other conditions remain the same, each of the following COULD be true, except:

(A) a majority of residents attend Bollywood Night

(B) a majority of residents attend the Contra Dance

(C) some event is attended by only one resident

(D) some event is attended by no residents

(E) Danny attends the same event as Neil

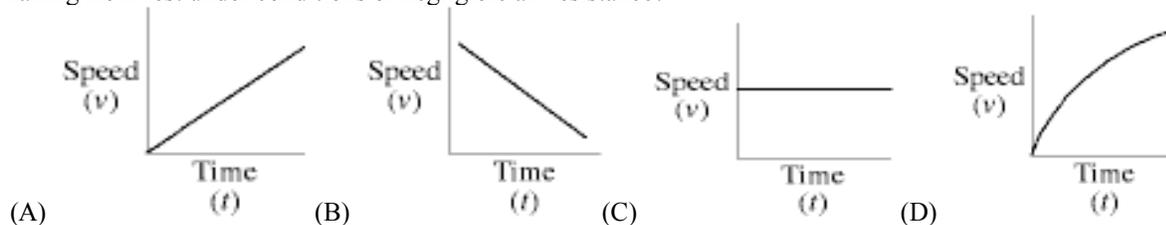
### Section 3. Science Reasoning -- 12 minutes

Priyanko Paul developed a system of physics based on what he thought occurred in nature. For example, he thought that if a stone is released from rest, it instantaneously reaches a speed that remains constant as the stone falls. He also believed that the speed attained by a stone falling in air varies directly with the weight of the stone. A 5-pound stone, for example, falls with a constant speed 5 times as great as that of a 1-pound stone. Pranks also noted that stones dropped into water continue to fall, but at a slower rate than stones falling through air. To account for this, he explained that the resistance of the medium through which an object falls also affects the speed. Therefore, he said, the speed of a falling object also varies inversely with the resistance of the medium, and this resistance is the same for all objects.

Bob Knox disagreed with Prank's explanation. He generated the following arguments to refute Priyanko: Consider a stake partially driven into the ground and a heavy stone falling from various heights onto the stake. If the stone falls from a height of 4 cubits, the stake will be driven into the ground, say, 4 fingerbreadths. But if the stone falls from a height of 1 cubit, the stake will be driven in a much smaller amount. Certainly, Bob Knox argued, if the stone is raised above the stake by only the thickness of a leaf, then the effect of the stone's falling on the stake will be altogether unnoticeable.

On the basis of a careful set of experiments, Bob Knox argued that the speed of an object released from rest varies directly with the time of fall. Also, the distance the object falls varies directly with the square of the time of fall if the effect of air resistance on the object is negligible. Thus, according to Bob Knox, objects actually fall with constant acceleration, and if air resistance is negligible, all objects have exactly the same acceleration.

16) Which graph accurately represents Bob Knox's theory of the relationship between speed and time for an object falling from rest under conditions of negligible air resistance?



17) A book dropped from a height of 1 meter falls to the floor in  $t$  seconds. To be consistent with Pranks's views, from what height, in meters, should a book 3 times as heavy be dropped so that it will fall to the floor in the same amount of time?

- (A)  $1/9$
- (B)  $1/3$
- (C) 1
- (D) 3

18) Suppose a heavy object falls to the ground in  $t$  seconds when dropped from shoulder height. According to Bob Knox, if air resistance were negligible, how many seconds would it take an object half as heavy to fall to the ground from the same height?

- (A)  $0.5t$
- (B)  $1.0t$
- (C)  $1.5t$
- (D)  $2.0t$

19) A piece of putty weighing 2 pounds is dropped down a shaft from the top of a tall building; 1 second later, a 3 pound piece of putty is dropped down the shaft. According to Pranks, what happens to the 2 pieces of putty if they fall for a relatively long time?

- (A) The separation between the 2 pieces constantly increases until they strike the ground.
- (B) The separation between the 2 pieces is constant until they strike the ground.
- (C) The heavier piece catches up to the smaller piece, and the 2 pieces travel together with the speed of the heavier piece.
- (D) The heavier piece catches up to the smaller piece, and the 2 pieces travel together with a speed faster than the speed of either.

## ANSWER SHEET

1. (A) (B) (C) (D) (E)

2. (A) (B) (C) (D) (E)

3. (A) (B) (C) (D) (E)

4. (A) (B) (C) (D) (E)

5. (A) (B) (C) (D) (E)

6. (A) (B) (C) (D) (E)

7. (A) (B) (C) (D) (E)

8. (A) (B) (C) (D) (E)

9. (A) (B) (C) (D) (E)

10. (A) (B) (C) (D) (E)

11. (A) (B) (C) (D) (E)

12. (A) (B) (C) (D) (E)

13. (A) (B) (C) (D) (E)

14. (A) (B) (C) (D) (E)

15. (A) (B) (C) (D) (E)

16. (A) (B) (C) (D)

17. (A) (B) (C) (D)

18. (A) (B) (C) (D)

19. (A) (B) (C) (D)