

Greenhill Science Olympiad

Division C

Team #

C4

School Name

Kingwood

Team Member Names

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REMOTE SENSING

Directions: Using the attached color images, give the best answer for each question. Write your answer on the ANSWER SHEET.

1. Compare **Images 1 & 2**. The best explanation for the cause of the differences is
 - A. before and after a forest fire.
 - B. rapid desertification.
 - C. change in seasons.
 - D. images taken at different time of day.
 - E. before and after crop harvest.
2. If red represents healthy vegetation in **Image 1**, what does red represent in **Image 2**?
 - A. urban development
 - B. shadows from clouds
 - C. coniferous forest
 - D. canyons
 - E. recently burned areas
3. Are the changes between **Image 1** and **Image 2** natural or man-made?
 - A. natural
 - B. man-made
 - C. Both natural and man-made.
4. In **Image 3**, what is the white area inside the circle?
 - A. a cloud
 - B. snow on a mountain peak
 - C. pond covered with ice
 - D. salt flats
 - E. a crater

5. **Image 3** is part of a false color-infrared satellite image. What does the red represent?
- A. mountains
 - B. populated areas
 - C. healthy vegetation
 - D. desert
 - E. buildings
6. **Image 4** is of the same area as **Image 3**, but taken on May 22, 1983, ten years after the first image. The blue area near the top has expanded tremendously. What is the likely cause for such a dramatic change on a mountain top?
- A. flooding
 - B. hurricane
 - C. deforestation
 - D. building a new city
 - E. volcano eruption
7. Was this disaster caused by man or nature?
- A. man
 - B. nature
 - C. Both man and nature.
8. In the upper left hand corner of **Image 4**, there is a checkerboard pattern of blue and red. What is the likely cause for the squares in this image?
- A. townships built in squared areas
 - B. natural changes in the topography of the land
 - C. irrigation in large squared fields
 - D. logging on squared sections of land
 - E. the beginning sections of the world's largest chess game
9. **Image 5** was taken at Yellowstone National Park on July 22, 1988. What is causing the white patches and hazy area within the circle?
- A. a rain cloud
 - B. snow on mountaintops
 - C. forest fires
 - D. dust from a stampeding herd of bison
 - E. dust on satellite lens

10. What are the white patches in the circle in **Image 5C**?
- A. rain clouds
 - B. snow on mountains
 - C. smoke from a volcano
 - D. forest fires
 - E. craters
11. What do the larger black shapes represent on **Image 5**?
- A. tar pits
 - B. black top
 - C. cloud shadows
 - D. lakes
 - E. canyons
12. **Image 5D** was taken of the same area two months later. If green represents healthy vegetation, what are the purple areas in this new image?
- A. suburban areas
 - B. burned areas
 - C. water bodies
 - D. desert
 - E. logged areas
13. Yellowstone National Park covers 2.2 million hectares and over 1 million of them were affected by this disaster in 1988. Was this disaster caused by man or nature?
- A. man
 - B. nature
 - C. Both man and nature.
14. In **Image 6A**, what is the big blue blob on the left side of the image?
- A. the Gulf of California
 - B. a river
 - C. a canyon
 - D. a city
 - E. a city
 - F. a lake

15. What is the red line indicated with the white arrow (#15)?
- A. a river
 - B. a canal
 - C. a highway
 - D. a settlement
 - E. a valley
16. What is the red area marked with #16?
- A. forested area along the lake
 - B. aquatic vegetation
 - C. irrigated cropland
 - D. a city built by the lake
 - E. beach
17. **Image 6B** was taken in 1989, sixteen years after **Image 6A**. What has happened to the blue body?
- A. It migrated south.
 - B. It has been partly filled in.
 - C. The water level dropped.
 - D. The area was planted.
 - E. Shifting continental plates.
18. Was this change in the land surface caused by nature or man?
- A. nature
 - B. man
 - C. Both nature and man.
19. What does the blue-black region in **Image 7A** represent?
- A. edge of a city
 - B. flooding
 - C. a large body of water
 - D. a large canyon
 - E. spilled Koolaid

20. What does the white represent?
- A. desert
 - B. clouds
 - C. concrete
 - D. salt flats
 - E. a city
21. **Image 7B** was taken in 1987, 15 years after **Image 7A**. What has happened over those fifteen years?
- A. flooding
 - B. The water level has dropped.
 - C. Salt has absorbed the water of the bay.
 - D. The area has been paved.
 - E. Clouds are covering the area.
22. The river shown in **Image 8A** is the longest in the world. The city on the edge of the map is the largest in Africa. What are the names of both?
- A. Ganges River; Varanasi
 - B. Amazon River; Manaus
 - C. Nile River; Cairo
 - D. Zambezi River; Livingstonia
23. In **Image 8B**, what has caused the increase in the blue area representing the city?
- A. greater amounts of irrigation
 - B. shrinking of the desert area to the west
 - C. increasing water levels of the river
 - D. increasing population and expansion of the city
 - E. flooding
24. In **Image 8C**, it seems the red area is expanding into the desert. If the red is healthy vegetation, how can we explain this?
- A. underground springs
 - B. flooding
 - C. irrigation
 - D. new areas becoming uncovered by sand storms
 - E. genetically improved trees that grow without water

25. Which was obtained first?
- A. Image 9A
 - B. Image 9B
26. What does the red represent?
- A. forest
 - B. buildings
 - C. crops
 - D. water
 - E. shadows
27. In **Image 9C**, why are some patches square and others round?
- A. different types of irrigation
 - B. different topology
 - C. patterns of underground springs
 - D. rain patterns
 - E. buildings surrounding the cropland
28. **Image 9B** was taken 15 years after Image 9A. What is the most dramatic change between the two images?
- A. increase in irrigated areas
 - B. increase in populated areas
 - C. decrease in cloud cover
 - D. increase in number of roads
 - E. increase in defense along the state lines
29. What red pattern do we see across the landscape?
- A. increase in forest cover
 - B. concentration of irrigation near the aquifer
 - C. expansion of populated area around aquifer
 - D. more bodies of water scattered throughout