



Computer Applications Olympiad



COZACARES
FOUNDATION
Enabling ICT in Education

A project of the Institute of IT Professionals South Africa, sponsored by ZACR/UniForumSA
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FIRST ROUND QUESTION PAPER 2014

INSTRUCTIONS TO THE CANDIDATES

1. All answers must be typed or pasted on the answer sheet provided in the document AnswerSheet.
2. You may do the questions in any order, but you have to make sure the answers are placed correctly on the answer sheet. Save as instructed by your teacher.
3. The files you need to answer the questions have been provided to your school on CD. Ask your teacher/investigatior where to find them.
4. The paper must be completed under “examination conditions”. No communication with other contestants (oral, electronic or any form) is permitted.
5. You may use the application of your choice and convert the data as it suits you.
6. You have one hour (60 min.) to complete this paper. After one hour you may be given time to print your answer sheet, but no additions or alterations to the answers are allowed.
7. All marking is done from hard copy, i.e. from the printed answer sheet.
8. Each correct answer counts one mark.
9. You need to store your files where you found them and where your teacher can access them in case the judges want to see how you obtained the answer. **Do not delete any of the files. Do not attempt to modify any files after the end of the contest.**

A: WORD PROCESSING

The Editorial Board of the World Meteorological Organisation is quite strict, and has asked you to report on the document “WMO document”.

1. What is the width of the left margin?
2. There are two fonts used in the document. One is Arial; what is the other font?
3. What font size is most commonly used in the text of the document?
4. How many times does the word weather appear with a lowercase “w”?
5. What is the exact width of the map image (in cm)?
6. Organisation policy allows only one space between words and between sentences in the text. How many spaces have to be removed to comply with the policy?
7. There are many hyperlinks in the document. To the report of which country does the URL <http://bit.ly/1gGKG0r> link?

8. On which page are the symbols « and » used instead of quotation marks?

B: SPREADSHEETS

Before answering these questions acquaint yourself with the contents and structure of the spreadsheet “SS Weather Data”. You have been asked to analyse this spreadsheet. It contains some weather data for the city of Portland for the year 2012. Use it to answer the questions below. It is most likely that extra columns of calculations will need to be created in order to answer some of the questions. Questions 5, 6 and 8 have been allocated columns in which you must do your calculations. These columns must not be deleted but must kept as part of the spreadsheet so that the judges can look at them later. These files may not be modified after the contest has ended.

...1. On how /

/...has ended.

1. On how many days was there a small “Trace” (indicated with the letter T) of rainfall, i.e. too little to measure or it evaporated before the reading was taken?
2. On which date was there no cloud cover but rain was recorded in the “Events” field?
3. On how many days was there snow but not any rain?
4. On how many days was the fog so thick for at least a part of the day, that the visibility was less than 500m?
5. What was the greatest difference between the mean wind speed and the maximum wind speed on a single day? Record your calculations in column **X**.
6. On how many days of the year is the average of the daily maximum temperature and the daily minimum temperature, equal to the daily mean temperature? (For example on Jan 1st the average of 8 and -4 is 2.) Record your calculations in column **AA**.
7. What was the total rainfall for the 3 months which had the heaviest monthly totals?
8. The “discomfort index” evaluates the impact of heat stress on the individual, taking into account the combined effect of temperature and humidity. The formula used by the SA Weather Service to calculate the discomfort index is:

$$\text{Discomfort Index} = (2 \times T) + (\text{RH}/100 \times T) + 24$$

where:

T is air temperature in degrees Celsius

RH is the percentage relative humidity

This index gives the following degrees of discomfort:

- a. 90-100: Very uncomfortable
- b. 100-110: Extremely uncomfortable
- c. 110+: Hazardous to health

On how many days was the discomfort index “hazardous to health”? Use the maximum temperature for each day in your calculations. Record your calculations in column **AD**.

C: DATABASE

Before answering these questions acquaint yourself with the contents and structure of the three tables in the WorldWeather database. The monthly rainfall and temperature measurements represent the averages for the particular months. The “Average” temperature measurement in the Temperature table is the average of the monthly temperatures, while the “Total” rainfall measurement in the Rainfall table is the sum of the average monthly rainfall figures.

1. What is the annual average temperature for the country with code ZAF?
2. What is the country code for the country with the lowest average rainfall in January?
3. In which region is the country that has the highest average annual temperature?
4. Which “South Asian” country has the highest average rainfall for June?
5. Which country has the highest average temperature for the months of June, July and August?
6. What is the annual average rainfall for all the Sub-Saharan countries? (express the answer as a whole number)
7. The difference between the annual average temperature for **all** the countries that fall into the Sub-Saharan African region and **all** those countries that fall into the Middle East & North Africa region, is ...
 - a. greater than 10 °C
 - b. greater than 8 °C but less than or equal to 10 °C
 - c. greater than 6 °C but less than or equal to 8 °C
 - d. greater than 4 °C but less than or equal to 6 °C
 - e. greater than 2 °C but less than or equal to 4 °C
 - f. greater than or equal to 0 °C but less than or equal to 2 °C

D: HTML

Open the file home.html in a text editor such as Notepad or Notepad++. Also view the home.html file in a web browser.

1. The text in the whole page displays as a level 1 heading. Identify which tag is incorrect and causing this problem, and write down the correct way this tag should be written.
2. What is the name of the file containing the image which appears in the background of the web page?