



Computer Applications Olympiad



A project of the Computer Society of South Africa, sponsored by UniForum SA.

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QUESTION PAPER 2012

INSTRUCTIONS TO THE CANDIDATES

1. All answers must be typed or pasted on the answer sheet provided in the document AnswerSheet.doc
2. You may do the questions in any order, but you have to make sure the answers are placed correctly on the answer sheet.
3. The files you need to answer the questions have been provided to your school on CD. Ask your teacher/invigilator 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 1.5 hours (90 min.) to complete this paper. After 1.5 hours you will 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.

A: The questions in this section are based on the document [2012gamesinformationpack.doc](#):

1. There are many paper sizes for printed documents. What paper size does this document use?
2. Who is the author of this document?
3. Bullets are indented with different tab stops in the document. What tab stop positions are used for the bullets in this document?
4. There are many headings in the whole document. How many headings are formatted as Heading 6?

5. The Olympic Delivery Authority (ODA) is important in managing public money for this event. How many times is the abbreviation 'ODA' found in the whole document?
6. Disabled persons, including the blind are catered for in these Olympic Games. How many times can the word 'blind' be found in the whole document?
7. URLs usually begin with the letters www near the beginning. How many URLs are found in the whole document?
8. Spelling can be set as English (United States) or English (South Africa) or English (United Kingdom). What word in the document is spelt incorrectly on any English spelling system?
9. The games are going to be expensive. How many times does the £-symbol appear in the document?
10. What is the size of the bottom margin?
11. A famous British track runner is the Chairman and President of the organising committee. What is his surname?

[11]

B: The spreadsheet *100 m World Records* gives a list of all the occasions that the world record was equalled or broken since 1 January 1900, in both the men's and women's event,. The columns contain the following data:

Time – the official time recorded.

Wind – the recorded wind speed. If the cell is blank then the wind speed was not recorded. If it is a negative value it means it was a head wind (blowing into the runners).

Auto – if the timing was done automatically (electronically) then the accurate time is listed.

Gender – the gender of the athlete.

Athlete – the name of the athlete who equalled or broke the world record.

Nationality – the nationality of the athlete.

Location of race – the city/location where the record was broken.

Date – the date on which the race took place.

Use the data in the spreadsheet to answer the following questions:

1. On how many occasions was the wind speed NOT measured?
2. How many times have females equalled or broken the world record?
3. What is the difference (time in seconds) between the current male and female record?
4. What was the average speed (in km/h) of Usain Bolt when he recorded his fastest time?"
5. In which month were the most records equalled or broken?
6. The world record was broken by a South African once; in which town was the record broken?
7. The current world record for females is 10.49 seconds. On what date was this time first achieved by the male athletes?
8. Which record time was equalled, but not bettered, by the most athletes?
9. On how many occasions, amongst the females, was there a dead heat (tie) in breaking the record?
10. On how many occasions, amongst the male records, was the world record equalled or broken exactly 1 year apart.
11. How many times was the world record equalled or broken outside the United States?

[11]

C: The **decathlon** is a combined event in athletics consisting of ten track and field events. The ten events are held over two consecutive days and comprise the following:

Day 1: 100 m, long jump, shot put, high jump, 400 m

Day 2: 110 m hurdles, discus throw, pole vault, javelin throw, 1500 m

The winners are determined by the combined performance in all events. Performance is judged on a points system in each event, not by the position achieved.

The database called **Decathlon** that has been provided to you records the 71 all-time best performances in the decathlon at various international competitions over a number of years. You are required to answer the following questions using the data given in the database:

1. Which athlete achieved the fastest time for the 100 m sprint ?
2. An athlete's performance in each event is given a specific number of points in accordance with the official IAAF Scoring Table. What number of points would be scored by an athlete jumping a height of 5.10 m in the pole vault?

3. How many athletes from Sweden have recorded all-time best scores?
4. Which athlete performed significantly better than all the others when comparing their Day 1 score to their Day 2 score?
5. What was the total number of points scored by Daley Thompson of Great Britain when he competed in the 1984 Olympic Games in Los Angeles?
6. Which athlete currently holds the world record for the decathlon?
7. What is the nationality of the athlete who has the best performance on Day 2? The nationality must be the full name and not just the abbreviation.
8. If the best performance (i.e. the highest number of points) was taken for each event what would be the total number of points scored?
9. What was the average distance thrown in the shot put event by all those athletes representing Russia?
10. Which country was best at the jumping events? Put another way, which country had the best overall average score for the long jump, high jump and pole vault?
11. Two formulae are used to generate the scores for each event in the decathlon. The formula for the running events is:

$$Points = A \times (B - P)^C$$

where P is the performance in sec; and A, B and C are constants specific to each event. For the 100 m event the values are: A = 25.437, B = 18 and C = 1.81

Usain Bolt's world record for the 100 m sprint is 9.58 seconds. Using an appropriate application determine the number of points he would have been awarded for this time had this race to have been the first event in the decathlon.

[11]

TOTAL 33 x 3 = %