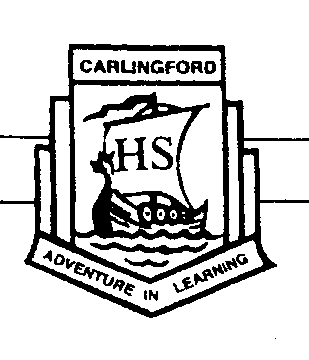
**Carlingford High School**



**Mathematics**

**Year 10 5.3 Term 2 Examination**

**2019**

**Time allowed: 50 minutes**

**Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Class: 10MAT3\_\_**

|  |  |  |  |
| --- | --- | --- | --- |
| **Please circle your teacher:** | **Mrs Blakeley** | **Mrs Wilson/**  **Mrs Young** | **Ms Bennett/ Mrs Lobejko** |

**Instructions:**

* Use blue or black pen
* Pencil may be used for graphs or diagrams only
* Board approved calculators may be used
* No lending or borrowing
* Show all necessary working out in the space provided
* Marks may be deducted for untidy setting out

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Topic** | **Surface area & volume** | **Data** | **Total** |  |
| **Mark** | **/25** | **/25** | **/50** | **%** |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 1. | Calculate the **exact** surface area of the following hemisphere. | | | **2** |
|  |  | Image result for surface area of a sphere | |  |
| 2. | |  | | --- | | Find the surface area of the following square pyramid, with a perpendicular height of 8cm. Give your answer to 1d.p. | | | | **3** |
|  |  |  | |  |
| 3. | Calculate the surface area of the following composite shape, correct to 2 decimal places. | | | **3** |
|  |  |  | |  |
| 4. | Calculate the volume of the following solids, correct to the nearest . | | |  |
|  | a) | Macintosh HD:Users:elbmagm:Desktop:Screen Shot 2019-05-06 at 8.30.34 PM.png | | **2** |
|  | b) | Macintosh HD:Users:elbmagm:Desktop:Screen Shot 2019-05-06 at 8.33.49 PM.png | | **3** |
| 5. | A rectangular pyramid has its top removed as shown. Find the volume of the remaining solid, correct to 1d.p.  Macintosh HD:Users:elbmagm:Desktop:Screen Shot 2019-05-06 at 8.26.32 PM.png | | | **3** |
| 6. | A cone is to be formed by joining the radii of the sector shown. In the cone that is formed. | | Macintosh HD:Users:elbmagm:Desktop:Screen Shot 2019-05-06 at 8.44.26 PM.png | **1** |
| a) | Find the slant height |
|  |  |  |  |  |
|  | b) | Show that the radius of the cone is 5cm | | **2** |
|  | c) | Find the perpendicular height | | **2** |
| 7. | Two similar pyramids have surface areas of and . Find the ratio of their: | | |  |
|  | a) | matching side lengths | | **1** |
|  | b) | Volumes | | **1** |
| 8. | The matching sides of two similar kites are in the ratio . Find the area of the smaller kite if the larger kite has an area of . | | | **2** |
| 9. | Describe the shape of the distribution represented by each of these box-and-whisker plots.  Macintosh HD:Users:elbmagm:Desktop:Screen Shot 2019-05-06 at 9.37.44 PM.png | | | **3** |
|  | a) |  | |  |
|  | b) |  | |  |
|  | c) |  | |  |
| 10. | Gerard scored 66 on a Maths test in which the class mean was 78. His mark was 2 standard deviations below the mean. What was the standard deviation? | | | **1** |
| 11. | Given the following data:  18 20 22 23 25 29 30 30 31 | | |  |
|  | a) | Find the five-number summary | | **2** |
|  | b) | Construct a box and whisker plot  C:\Users\mgamble3\AppData\Local\Microsoft\Windows\INetCache\Content.MSO\1B567C9.tmp | | **2** |
| 12. | The boxplot represent the results of 80 students in a Science test. | | |  |
|  | a) | Find the range of the test results | | **1** |
|  | b) | Find the median test score | | **1** |
|  | c) | What is the interquartile range? | | **1** |
|  | d) | How many students has a test mark between:   1. 25 and 75? 2. 40 and 60? | | **2** |
|  | e) | What percentage of students scored more than 75? | | **1** |
| 13. | A researcher tested two different brands of batteries to see how long they lasted. Her results are shown in the parallel box-and-whisker plot below.  Macintosh HD:Users:elbmagm:Desktop:Screen Shot 2019-05-06 at 9.48.28 PM.png  Use the box-and-whisker plot to compare the performance of Brand X and Brand Y. | | | **3** |
| 14. | Stuart and Greg play 9 holes of golf. Their scores are listed in the table below.   |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | Hole | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | Total | | Stuart | 4 | 7 | 5 | 2 | 4 | 7 | 3 | 6 | 7 | 45 | | Greg | 3 | 5 | 4 | 2 | 3 | 7 | 3 | 5 | 14 | 46 | | | |  |
|  | a) | Complete the following table:   |  |  |  | | --- | --- | --- | |  | **Stuart** | **Greg** | | **Mean** | 5 |  | | **Standard deviation** | 1.76 |  | | **Range** | 2 |  | | **Interquartile range** | 3.5 |  | | | **4** |
|  | b) | Which golfer was more consistent? Explain with reference to the calculations in part a. | | **2** |
|  | c) | 1. Greg scored 14 on the 9th hole. What statistical term might be given to this score? 2. Which measure of spread was not affected by the score of 14? | | **2** |
|  |  | **End of Exam - Please check your work.** | |  |