

PAPER CODE NO.
COMP320

EXAMINER : Dr Vladimir Sazonov
DEPARTMENT : Computer Science Tel. No. 46792



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of LIVERPOOL

MAY 2006 EXAMINATIONS

Bachelor of Engineering : Year 3
Bachelor of Science : Year 3
No qualification aimed for : Year 1

Software Development Tools

TIME ALLOWED : Two Hours and a half

INSTRUCTIONS TO CANDIDATES

Answer **all** questions in Section A
Answer **only four** questions in Section B.

If you attempt to answer more questions than the required number of questions (in any section), the marks awarded for the excess questions will be discarded (starting with your lowest mark).



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SECTION A

Answer **ALL** Questions in this section.

1. Ant

- (a) What does “immutability of properties” mean? Mention at least one exception of this property.

3 marks

- (b) What is a properties file, and what are the two ways in which Ant can load it?

5 marks

- (c) Describe the action of a `<javac>` Ant task

```
<javac srcdir="src" destdir="build/classes"/>
```

and explain which files are affected by this action and how.

4 marks

- (d) i. Draw a dependency graph for the build file `build.xml` (which for simplicity contains no real tasks)

```
<project name="OurProject" default="test">
  <target name="clean" depends="compile" />
  <target name="init" />
  <target name="test" depends="compile" />
  <target name="archive" depends="test" />
  <target name="compile" depends="init" />
  <target name="all" depends="clean,archive" />
</project>
```

- ii. Explain in which order the targets listed in 1(d)i above will be executed in the following three cases of running Ant from the command line

- A. `>ant`
B. `>ant archive clean`
C. `>ant all`

8 marks

- (e) Give a simple example for the use of the `flatten` mapper

```
<mapper type="flatten" />
```

and explain the actions of your example.

4 marks

- (f) Explain the difference between the following two definitions of a property?

```
<property name="build.classes" value="build/classes" />
<property name="build.classes" location="build/classes" />
```

5 marks



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2. Testing

- (a) What are the four main steps for fitting JUnit into the Ant build process? **4 marks**
- (b) Compare Cactus with HttpUnit **3 marks**
- (c) List the three main steps in writing a JUnit test case, and illustrate the process by a simple example. **8 marks**
- (d) List six assertion methods allowed in test cases. **6 marks**
- (e) What is the role of the two additional methods setUp() and tearDown() in a test case? **7 marks**
- (f) State three reasons why using <junit> task is a better way to run test cases from Ant than <java>. **3 marks**



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SECTION B

Answer only **FOUR** questions from this section.

Credit will be given for the best four answers in Section B.

3. Describe

- a system of directories, and
- two simplest build files:
 - `master.xml`, in one directory, and
 - `build.xml` in another directory,each having one target containing only `<echo>` tasks

in such a way that

- `master.xml` should call `build.xml`,
- `master.xml` should pass a property to the called file, and
- `<echo>` messages in `build.xml` should show on run time
 - which build file is running, and
 - the value of the property passed by `master.xml`.

10 marks

4. Give ten reasons why Ant is a good build tool.

10 marks

5. Give an example of an Ant task executing a Java class with arguments. State five benefits of executing a Java program from inside Ant.

10 marks

6. What can prevent the generation of an HTML report before a build fails, and how can this problem be resolved?

10 marks

7. Give a general description of Eclipse.

10 marks

8. Describe the essential steps, advantages, and peculiarities of creating and running a JUnit test case in Eclipse.

10 marks

9. Describe the essential steps, advantages, and peculiarities of creating and running an Ant build file in Eclipse.

10 marks

10. List, characterise and compare the most essential features of four types of automated testing, and state corresponding examples of testing tools together with a brief characterisation.

10 marks