Advanced Higher Computing – Key areas for exam revision

General – Analysis/Testing/Maintenance

Analysis

Functional Requirements

- Inputs
- Processes
- Outputs

End-user requirements

Scope, Boundaries and Constraints

Feasibility Study

- Economic
- Time
- Legal
- Technical

Project Planning

- Scheduling
- Resources
- Gantt chart

Use case diagrams:

- actors
- use cases
- relationships

Testing

- Integrative testing
- Component testing
- Usability testing based on prototypes End-user testing

Maintenance

- Perfective
- Adaptive
- Corrective

Software Development

Data structures

- Parallel 1-D arrays
- Records
- Arrays of records
- 2-D arrays
- Linked lists (double and single)

Object Oriented Programming

- Object
- Property
- Method
- Class
- Sub-class
- Encapsulation
- Inheritance
- Instantiation
- Polymorphism
- Design – UML Class Diagrams

Standard Algorithms – Explanation of each, compare efficiency and know the steps/code involved.

- Binary search
- Insertion sort
- Bubble sort

Web Development

Wireframe & Prototyping

visual layout
navigation
consistency
underlying processes

HTML Forms

FORM element:

- action
- method (get and post)

INPUT, SELECT and TEXTAREA elements:

- name
- value

TABLE element: — th, tr, td

Media Queries –

How do they work? Code used.
media type: — print — screen
media feature: — max-width

PHP

Pseudocode for server side processes.
assign form data to server-side variables:

- $_get()
- $_post()

open and close connection to database server: — die() — mysqli_connect() — mysqli_close()

execute SQL query:
mysqli_query()
format query results: — echo — mysqli_fetch_array() — mysqli_num_row()

Sessions

session_start()
session_destroy()

Database Development

Query Design

Data Dictionary

Data types: varchar, integer, float, date, time
Validation – presence, range, restricted choice, presence

ERD Diagrams –

- entity name
- entity type (strong, weak)
- attributes
- relationship participation (mandatory, optional)
- name of relationship cardinality

SQL Data Definition Language (DDL)

CREATE statement:

- constraints:
- primary key
- foreign key
- not null
- check
- auto increment

DROP statement:

- DROP DATABASE
- DROP TABLE

SQL Data Manipulation Language (DML)

HAVING clause of the SELECT statement

subqueries used with the WHERE clause of SELECT statements

Logical operators:
IN
NOT
BETWEEN
ANY
EXISTS