

THE OPEN UNIVERSITY OF SRI LANKA  
 DEPARTMENT OF TEXTILE & APPAREL TECHNOLOGY  
 POST-GRADUATE DIPLOMA / MASTER OF TECHNOLOGY IN  
 APPAREL PRODUCTION AND MANAGEMENT  
 FINAL EXAMINATION– 2015/16  
 TTY7191 – RESEARCH METHODOLOGY  
 DURATION: 3 HOURS




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DATE: 17<sup>th</sup> December 2016

TIME: 09.30-12.30 hours

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Total Number of Questions = 08.

Number of questions to be answered = 06.

Answer the question 1, **which is compulsory** and five (05) additional questions.

Question 1 carries thirty (30) marks and questions 02 to 08 carry fourteen (14) marks each.

**01. Compulsory question**

- (a) Distinguish between “Fundamental” and “Applied” Research. (04 Marks)
- (b) Distinguish between “Qualitative” and “Quantitative” research. (04 Marks)
- (c) State six (06) elements of a good research problem. (03 Marks)
- (d) What is “Research Hypothesis”? (04 Marks)
- (e) Distinguish between “Population” and “Sample” (04 Marks)
- (f) What are “Demand Characteristics”? (04 Marks)
- (g) State six (06) different areas of scientific dishonesty (03 Marks)
- (h) Distinguish between “Probability” and “Non-Probability” sampling. (04 Marks)

- 02.**
- a) Distinguish between “Inductive” and “Deductive” reasoning. (03 Marks)
  - b) What is “Pragmatism” as explained by John Dewey? Explain how pragmatism has led to develop the present process of “scientific research methodology” and describe the different steps involved in scientific methodology. (11 Marks)

03. a) State different categories of research falling under “Quantitative” research and write short notes about any two of them. (06 Marks)
- b) Both “Historical” and “Qualitative” research, are based on qualitative approach. However, they have certain different characteristics. List and explain these differences between Historical and Qualitative Research. (06 Marks)
- c) Suggest a research title which may fall under historical research. (02 Marks)
04. You wish to carry out a research project on “the effect of sewing machine setting and environmental factors on the thread breakage during sewing”.
- a) What is the “type of research” you have to carry out to investigate this problem? Identify the dependent variable and all possible independent variables. Draw a “Cause and Effect Diagram” to show all these independent and dependent variables. (08 Marks)
- b) What factors do you consider as extraneous variables in this research? Explain why. (06 Marks)
05. a) Write a 200-word text explaining the “Background” and identifying the “Objectives” of the project mentioned in the Question 4. (10 Marks)
- b) State at least four (04) hypotheses you would formulate for this research. (04 Marks)
06. a) State and describe different purposes of carrying out literature surveys. (06 Marks)
- b) Explain, what you should **not** forget doing while carrying out a literature review. (04 Marks)
- c) What is a Citation? State two systems used in citing references? (04 Marks)
07. a) Mention and explain the four major levels/scales of measurement? (08 Marks)
- b) Distinguish between “Validity” and “Reliability”. Explain giving an example. (06 Marks)
08. a) List and explain the Matters to be considered in the design of questionnaires. (06 Marks)
- b) What is a “double barrelled” question? (02 Marks)
- c) What is a focus group interview? Describe the advantages and disadvantages of focus group interviews. (06 Marks)

**THE OPEN UNIVERSITY OF SRI LANKA**

Faculty of Engineering Technology

Department of Electrical and Computer Engineering

Diploma in Information Systems &amp; Technology

**ECI3168 - Graphics and Interactive Multimedia Design**

Final Examination – 2015/2016

**(CLOSED BOOK)**

Time Allowed: 2 hours

DATE : 1<sup>st</sup> December 2016

TIME : 09.30 a.m – 11.30 a.m

*Answer ALL***Question 1 (25 marks)**

1. Define the term “Digital Multimedia”. (5 marks)
2. Explain the difference between **Continuous** and **Discrete** media types by giving an example for each of the types. (5 marks)
3. An implementation of a set of multimedia kiosks has been proposed to exchange information between the farmers in rural areas and the agriculture department in Sri Lanka. Evaluate this proposal by Identifying its benefits and possible barriers. (5 marks)
4. Classify the following media items based on their time/space nature (**Continuous** and **Discrete**) and the origin (**Captured** and **Synthesized**). (10 marks)
  - a. A photograph of a billboard which contains text
  - b. A non-animated 3D model in an interactive multimedia application
  - c. A non-sample-based MIDI audio loop
  - d. A 3D model obtained using a 3D scanner
  - e. An audio recorded using a direct line-in cable from an electric guitar

**Question 2 (25 marks)**

1. Compare and contrast between the vector and raster graphics. (5 marks)
2. Explain the purpose of using image dithering. (5 marks)
3. Suggest particular file formats for the following scenarios: (5 marks)
  - a. An image captured using a camera, which may be post-processed by a professional photographer.
  - b. An image captured for storing in a digital photo album
  - c. A monochrome line art to be overlaid on the background image of a web page
  - d. An image which contains tiny text which is to be OCR.

- e. A Sequence of high quality images with full-range of transparency support, rendered using 3D animation software for the purpose of creating an animation.
4. A multimedia project requires a raster graphic with the following specification: (10 marks)
    - **Size:** 1024x780; **Colors:** bi-tonal; **Transparency:** none; **Compression:** none.  
File-header-size: 200 ASCII characters.

Calculate the size of the graphic file including both the image and header content, in kilobytes.

### Question 3 (25 marks)

1. Briefly explain the phenomenon “**phi**”, in human visual perception. (5 marks)
2. Explain how cell-based animation technique can reduce the production time of generic animation projects. (5 marks)
3. List what image processing technique and the animation special effect are used to create the image morphing effect. (5 marks)
4. A 3D animation contains a scene of a Sumo player attacking another Sumo player on his face. The storyboard of the animation has mentioned the following facts about the scene.
  - a. The attack should be heavy and as critical as the other player falls down and hit on the floor.
  - b. The audience should be prepared for this extreme scene before the attack.
  - c. Make the audience thoroughly focuses to the two Sumo players while attacking.
  - d. Audience should feel the extreme mass and the softness of the body of the Sumo player when he hits on the floor.
  - e. Emphasize the expressions of the Sumo player when he gets attacked on his face.

Briefly explain how you achieve each of the above tasks using the principals of animation. (10 marks)

**Question 4 (25 marks)**

1. Give an example application for each of the following 3D rendering effects. (5 marks)
  - a. Lens Flare
  - b. Depth of Field
  - c. Subsurface scattering
  - d. Caustic effect
  - e. Volumetric sampling
2. Explain the different usage of ray-tracing and GPU-based polygonal rendering. (5 marks)
3. What is the task of a synchronization device in multimedia presentations? (5 marks)
4. Calculate the size of the video file having the following specification. Assume that the file is not compressed. (10 marks)
  - a. A **3D** video having VGA Resolution, 30 FPS, 24-bit Color resolution and 10 minutes of duration.
  - b. The video contains a stereo audio track with 16-bit per-channel resolution and 44.1 kHz of sample rate.