# IT5405: Fundamentals of Multimedia

## Structured Question Paper

**11th June, 2017**
*(TWO HOURS)*

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*To be* **completed** *by the candidate*

BIT Examination Index No: ........................................

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**Important Instructions:**

- The duration of the paper is **2 (two) hours**.
- The medium of instruction and questions is English.
- This paper has **4 questions** and **19 pages**.
- **Answer all questions.** All questions **carry equal** marks.
- **Write your answers** in English using the space provided **in this question paper**.
- Do not tear off any part of this answer book.
- Under no circumstances may this book, used or unused, be removed from the Examination Hall by a candidate.
- Note that questions appear on both sides of the paper.
  If a page is not printed, please inform the supervisor immediately.
- Calculators are **not** allowed.

*Questions Answered*

Indicate by a cross (✗), (e.g. ✗ ) the numbers of the questions answered.

| | Question numbers | | | |
|---|---|---|---|---|
| **To be completed by the candidate by marking a cross (✗).** | 1 | 2 | 3 | 4 |
| To be completed by the examiners: | | | | |
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| | | | | |

**Q1. Identify whether the following statements a) to o) are correct or incorrect. Justify your answer if it is incorrect.**

    **a)** GIFs are not particularly good for photographic images.

      ☐  Correct         ☐  Incorrect

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*(01 Mark)*

    **b)** GIF is well suited for any image with areas of flat color such as *logos, line art, icons, cartoon-like illustrations*

      ☐  Correct         ☐  Incorrect

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*(01 Mark)*

    **c)** "Times New Roman" is an example of a *serif* typeface.

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*(01 Mark)*

    **d)** S-Video cable separates the luminance signal onto one wire and the combined color signals onto another wire.

      ☐  Correct         ☐  Incorrect

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*(1.5 Marks)*

2

**e)** You can directly transfer digital information back and forth between a DV camcorder and your computer in real time. The ports and cables that enable this direct transfer use the IEEE 1394 standard.

☐ Correct ☐ Incorrect

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*(1.5 Marks)*

**f)** An image that is in 24 bits RGB color model with 2048 pixels in width and 1536 pixels in height has a total of 3.1 megapixels.

☐ Correct ☐ Incorrect

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*(01 Mark)*

**g)** Serial Digital Interface (SDI) separates the luminance signal onto one wire and the combined color signals onto another wire.

☐ Correct ☐ Incorrect

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*(02 Marks)*

**h)** MP4 is a video only compression format which is used in MPEG-4.

☐ Correct ☐ Incorrect

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*(02 Marks)*

**i)** Progressive JPEGs provide some indication of the full image for the reader to look at, without having to wait for the entire image to download.

☐ Correct ☐ Incorrect

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*(02 Marks)*

**j)** HDMI (High-Definition Multimedia Interface) is a compact audio/video interface for transferring compressed video data and uncompressed digital audio data from a HDMI-compliant source device.

☐ Correct ☐ Incorrect

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*(02 Marks)*

**k) VHS-C** is the VHS videocassette format used primarily for consumer-grade compact analog recording camcorders.

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*(02 Marks)*

**l)** MPEG-1 or MPEG-2 Audio Layer III, more commonly referred to as MP3, is an encoding format for digital audio which uses a form of lossy data compression.

☐ Correct ☐ Incorrect

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*(02 Marks)*

4

**m)** Component Video Interface separates the red, green and blue signals onto two wires and the chrominance signals onto another wire.

☐ Correct ☐ Incorrect

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*(02 Marks)*

**n)** Composite **video** is an analog video transmission (without audio) that carries standard definition video typically at 480i or 576i resolution. Video information is encoded on three channels,

☐ Correct ☐ Incorrect

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*(02 Marks)*

**o)** JPEG is a compression standard use only for the color images. It uses a combination of discrete cosine transform, quantization, run length encoding and Huffman encoding techniques.

☐ Correct ☐ Incorrect

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(02 *Marks*)

**Q2.**

**[i]** Symbols are used in Adobe Flash as an easy way to clone objects. There are **three (03)** different types of symbols. Name them and explain briefly the usage of each symbol separately.

*(03 Marks)*

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**ANSWER IN THIS BOX**

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[ii] List **three (03)** distinct models of color used in multimedia and explain the use of each color model in different multimedia industries.

*(06 Marks)*

**ANSWER IN THIS BOX**

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**[iii]** Write down **three (03) major advantages** of the Unicode Standard over the ASCII Standard?

*(06 Marks)*

**ANSWER IN THIS BOX**

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[iv] Explain the concept behind the *Linear Editing* and *Non-Linear Editing* systems in the Video production industry.

*(06 Marks)*

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**ANSWER IN THIS BOX**

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*Non-Linear Editing*

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**[v]** ZWJ (Zero with Joiner) and ZWNJ (Zero with Non Joiner) are special Unicode code points introduced to render correctly with Indic scripts. Write down the reason to introduce these code points.

*(04 Marks)*

**ANSWER IN THIS BOX**

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**Q3**. Answer all of the following.

**[i]** What is meant by the terms *Multimedia* and *Hypermedia*? Distinguish between these two concepts.

*(04 Marks)*

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**[ii]** Differentiate between the BMP, JPG and PNG image file formats mentioning where each is used.

*(06 Marks)*

**ANSWER IN THIS BOX**

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**[iii]** Briefly explain how *gamma correction* is achieved using Adobe Gamma.

*(04 Marks)*

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**[iv]** The main types of multimedia data are: text, images, audio, and video. What technical issues are associated when these data types are integrated in a Multimedia System?

*(08 Marks)*

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**ANSWER IN THIS BOX**

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**[v]** MP3 is an audio only compression format which stands for MPEG-1 Layer 3. Explain briefly.

*(03 Marks)*

**ANSWER IN THIS BOX**

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**Q4.** Answer **ALL** of the following.

**[i]** Differentiate between Lossy compression and Loss less compression used with Digital Data.

*(07 Marks)*

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**ANSWER IN THIS BOX**

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[ii] Write down the important enhancements of MPEG-2 video over MPEG-1 video.

*(06 Marks)*

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**[iii]** What is meant by *keyframing* and *tweening* in Adobe Flash?

*(06 Marks)*

**ANSWER IN THIS BOX**

*keyframing*

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**[iv]** Explain the difference among the **three (03)** major TV broadcasting standards and discuss why these three standards exist?

*(06 Marks)*

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