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**Exam Name:**        **ZOMBIES IN POPULAR MEDIA AND MATHEMATICS**

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**Unit refs:**        **ZPMM**

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**INSTRUCTIONS TO CANDIDATES**

See Front Page Instruction Samples document [\[here\]](#).

This could include information about:

If question paper needs to be handed in

Questions to answer

Allocation of marks

Where / how to answer questions (e.g. answer books / MCQ answer sheet etc)

Supplied materials

Permitted materials / equipment

Note, this list should be created without bullet points (hence the `\item[]` and the `Opt leftmargin`)

**SECTION A**

Answer ALL Questions

**1 Zombies in films ..... (15)**

Consider Zombies in films.

1. a) Name some films with Zombies [5]

1. b) State the average number of characters eaten by a single Zombie in "28 Days Later". Use the following formula: [10]

$$\bar{x} = \frac{1}{n} \cdot \sum_{i=1}^n x_i$$

**SECTION B**

Answer Only ODD numbered questions

**2 Zombie Programming ..... (20)**

Consider the following code segment:

```
1 #include <iostream>
2 using namespace std;
3
4 int main ()
5 {
6     cout << "Hello World!";
7     return 0;
8 }
```

2. a) In your own words, explain:

2. a) i) Was this code produced by a Zombie? If so, why? [5]

2. a) ii) How would you improve on the above code? [5]

2. b) Write a page essay on any topic you like. Appropriate use of references required. [10]

**3 Zombie Algorithms** ..... (15)

3. a) Consider the following algorithm:

**Require:**  $n \geq 0$

**Ensure:**  $y = x^n$

$y \leftarrow 1$

$X \leftarrow x$

$N \leftarrow n$

**while**  $N \neq 0$  **do**

**if**  $N$  is even **then**

$X \leftarrow X \times X$

$N \leftarrow N/2$

**else** { $N$  is odd}

$y \leftarrow y \times X$

$N \leftarrow N - 1$

**end if**

**end while**

Describe in your own words the thought processes required for a Zombie to generate this algorithm. How can the promise of fresh brains serve as a motivators? [10]

3. b) Admire our institution's mighty logo:



Draw this in a manner similar to a Zombie. Coloured pens are provided. [5]

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Name of Unit leader....	Anne Onymous
Ext No.....	60000
Name of PSO.....	John Doe
Ext No.....	60000