



1.3.4 Search Engine Indexing & PageRank

1. Explain what happens when a search engine indexes a page. You do **not** need to discuss ranking.

[4 marks]

- A web crawler / spider visits the site
- By following a link
- It records each word on the page
- ... Along with the position of the word on the page
- ... And adds an entry for the page under the word in the index

2. A search engine can use the PageRank algorithm to determine a website's ranking. The PageRank algorithm utilises a damping factor.

- a) State what is meant by the term 'damping factor'.

[1 mark]

- A value between 0 and 1
- Probability that a user will not follow a link

- b) Give **two** other factors that affect the output value given by the PageRank algorithm for a website.

[2 marks]

- Number of links to the target site
- PageRank score of the sites linking to the site

3. A company wants more customers to be able to find their website on the internet.

Discuss why search engine indexing and page ranking will be important in achieving this.

You should include the following in your answer:

- what search engine indexing means and what information is collected
- what PageRank means and possible factors that can affect a PageRank score of a website
- possible ways for the company to improve the PageRank score of pages on its website.

[12 marks]

Knowledge

Search engine indexing:

- Search engine indexing is where a database of key words is kept with links to relevant pages stored with the keyword





- Words are stored along with their position on a page
- Bots (spider/crawlers) will “crawl” the web finding web pages and looking for key words on them
- They will navigate from page to page following hyperlinks
- They are then sent back to the search engine’s database
- When you search for a website, you are not searching on the web, you are searching in the search providers database

PageRank:

- Used to find and rank website pages and then list the results in a search engine. If a website has a higher score, it will appear higher in the list of search results.
- More links from more important pages, ranks a page higher
- Stored as a weighted, directed graph
 - Pages are nodes
 - Hyperlinks are edges in one direction
 - Weightings are calculated by page rank

Application

- To get more of presence they will need to...
- Make effective use of meta tags that effectively describe the contents of the website.
- Make effective use of H1 tags using suitable headings that describes the content of the website
- Increase the number of quality of incoming links from other websites, ideally those with a high PageRank score themselves
- Increase the number of outgoing links
- Key words can be stored in meta tags, title tags or header tags (h1, h2 etc)
- Damping factor is used to quash a PageRank based on the idea that a user will only click through a certain number of links

Evaluation

- PageRank algorithm is only one algorithm that is used to Rank websites.
- To get a better presence on the internet, the company will need to consider who links to their page, the more popular the better
- They could potentially work with other companies who have established websites and get incoming links from those sites
- It’s important that a company ensures their site is malware free/secure as this can impact on their PageRank score

