FIFTH QUIZ ANSWERS

COSC 6360

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First question

- **_Why_** does FAWN try to **_minimize the memory footprint_** of its in-memory hash table?

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  - *FAWN tries to minimize the memory footprint of in-memory hash tables because larger in-memory hash tables would require larger memories and refreshing these larger memories would increase the power consumption of FAWN nodes.*

Second question

- What happens in FAWN when a physical node fails?

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  □ *The workload of the failed physical node gets reassigned to the successors of the virtual nodes hosted by the failed physical node.*

Third question (Part A)

- What is the purpose of Xen's **shadow page tables**?

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  - ☐ *The shadow page tables are page tables managed by Xen that map the virtual pages of a guest OS into actual machine pages. For that reason, they are used to resolve all TLB misses.*

Third question (part B)

- How does Xen keep these tables up to date?

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- *Xen marks the page tables of guest OSes <u>read-only</u> so that any changes made by a guest OS to one of its page table can be immediately reflected in the corresponding shadow page.*

Fourth question

- Why does Xen reserve for itself the top 64MB region of each address space?

Fifth question

- How does the VMWare ESX server detect *identical pages*?

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  □ *They first compare page hashes then do a full comparison of the pages whose hashes match.*

Sixth question

- What is the **main advantage** of **ballooning** over other ways to reclaim memory space from a virtual machine?

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  - *It does it in a way that is transparent to the guest OS while letting the guest OS decide with virtual pages will be expelled from main memory*

Seventh question

- In the ACID acronym listing the properties of atomic transaction, what does the letter 'D' stand for?

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  - ☐ *D stands for: Durability*

    - *Committed data are immediately stored by the system in some kind of crash-proof storage.*

Eighth question

- Which is the **correctness criterion** used by Aegean?

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  □ *Undistinguishability*
    - *A replicated service is correct if its outcomes are undistinguishable from those of an unreplicated service*

Ninth question

- What is the **purpose** of **request pipelining** in Aegean?

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    □ *To allows services to keep processing requests while their nested requests are being transmitted and processed.*