

Advanced Programming

COMS 3157

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1. Q1? (2 marks)
 - (a) What is a signal?
 - (b) What is a signal handler?
2. Give the scenario where each signal would occur. (4 marks)
 - (a) SIGFPE
 - (b) SIGINT
 - (c) SIGTSTP
 - (d) SIGCONT
3. Give the following actions for the predefined signal function handlers in `signal()` (2 marks)
 - (a) SIG_DFL
 - (b) SIG_IGN
4. Which two signals cannot have any signal handlers? (2 marks)
5. Briefly explain each argument in `sigaction(int signum, const struct sigaction *act, struct sigaction *oldact);` (3 marks)
 - (a) `int signum`
 - (b) `struct *act`
 - (c) `struct *oldact`
6. Briefly explain each field in the `sigaction` struct (4 marks)
 - (a) `void (*sa_handler)(int);`
 - (b) `void (*sa_sigaction)(int, siginfo_t *, void *);`
 - (c) `sigset_t sa_mask;`
 - (d) `int sa_flags;`

```

1  struct sigaction {
2      void      (*sa_handler)(int);
3      void      (*sa_sigaction)(int, siginfo_t *, void *);
4      sigset_t   sa_mask;
5      int       sa_flags;
6      void      (*sa_restorer)(void); // obsolete, ignore
7  };
8

```

Listing 1: sigaction struct

7. Briefly explain what each function does for sa_mask in the sigaction struct (3 marks)
 - (a) int sigemptyset(sigset_t *set)
 - (b) int sigaddset(sigset_t *set, int signum)
 - (c) int sigfillset(sigset_t *set)
8. What does the raise(int iSig) function do? (1 mark)
9. What does the kill(pid_t iPid, int iSig) function do? (1 mark)
10. Q10. (2 marks)
 - (a) What does the alarm(int time) function do?
 - (b) What happens if the time argument is set to 0?