

Institute of Business Administration, Karachi (Main Campus)
Department of Computer Science
Fall 2023 Quiz-1
Operating Systems (CSE-331)

1. Calculate the number of times "hello" is printed with explanation.

```
#include <stdio.h>
#include <sys/types.h>
#include <unistd.h>
int main ()
{
    fork();
    fork();
    fork();
    printf("hello\n");
    return 0;
}
```

2. A process executes the following code.

```
for (i = 0; i < n; i++)
    fork();
```

- (A) n
- (B) $2^n - 1$
- (C) 2^n
- (D) $2^{(n+1)} - 1$

3. Consider the following code fragment:

```
if (fork() == 0) {
    a = a + 5;
    printf("%d, %d\n", a, &a);
}
```

```
}
else {
    a = a - 5;
    printf("%d, %d\n", a, &a);
}
```

Let u, v be the values printed by the parent process, and x, y be the values printed by the child process. Which one of the following is TRUE?

- (A) $u = x + 10$ and $v = y$
- (B) $u = x + 10$ and $v \neq y$
- (C) $u + 10 = x$ and $v = y$
- (D) $u + 10 = x$ and $v \neq y$

4. Predict the output of the following program.

```
#include <stdio.h>
#include <unistd.h>
int main()
{
    fork();
    fork() && fork() || fork();
    fork();

    printf("forked\n");
    return 0;
}
```