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To find the maximum amount of dinners that this process can output per hour, we need to look at the bottleneck. The bottleneck is the slowest process in the production line that limits the maximum output. In this case, the bottleneck is the oven process, as it takes the longest time to cook the dinner. From the given data, we can calculate the time required for each process:

- Prep: 1minutes
- Seasoning: 2minutes
- Marinate: 15 minutes
- Assemble: 3 minutes
- Bake: 25 minutes
- Oven: 35 minutes
- Cool: 5 minutes

The total time required for each dinner is:

10+2+15+3+25+35+5=95 minutes

To convert this to hours, we divide by 60:

95/60 = 1.58 hours

So, one dinner takes 1.58 hours to complete.to find the maximum output per hour, we divide 1 hour by 1.58 hours per dinner:

1/1.58 = 0.63 dinners per hour

Explanation:

The process depicted in the provided link is a production process that includes three stages: preparation, cooking, and packaging. The question asks to find the maximum number of dinners that this process can output per hour, the bottleneck, and the utilization at total output capacity.

To find the maximum number of dinners that the process can output per hour, we need to identify the slowest stage in the process, which is known as the bottleneck. The maximum output rate of a process is determined by the capacity of its bottleneck.

Based on the information provided in the link, the capacity of each stage is as follows:

- Preparation: 80 dinners per hour (yield loss of 30%)
- Cooking: 60 dinners per hour (yield loss of 20%)
- Packaging: 75 dinners per hour (yield loss of 0%)

To find the bottleneck, we need to compare the capacities of the three stages. The cooking stage has the lowest capacity (60 dinners per hour), which means it is the bottleneck of the process. This means that the maximum number of dinners that can be produced per hour is 60.

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However, we cannot produce a fraction of a dinner, so the maximum output per hour is 0 dinners.
The yield loss and yield base percentages given do not affect the maximum output per hour, but they do affect the actual output and the amount of dinners.
To find the utilization at total output capacity, we need to calculate the total time required for one dinner, including the yield loss:
(10+2+15 +3+25+35+5) / (1 – 0.3) = 135.71 minutes
To convert this to hours, we divide by 60:
135.71/60 = 2.26 hours
So, one dinner with a 30% yield loss takes 2.26 hours to complete. To find the utilization at total output capacity, we divide the total available time (1 hour) by the time required for one dinner:
1/2.26 = 0.44
The utilization at total output capacity is 44%. This means that the production line is not fully utilized and there is room for improvement in efficiency.

Explanation:

To find the utilization at total output capacity, we need to calculate the percentage of the total capacity that is being used. Since the cooking stage is the bottleneck and has a capacity of 60 dinners per hour, the total output capacity of the process is also 60 dinners per hour. To find the utilization, we need to calculate the actual output rate of the process.
The actual output rate of the process is determined by the stage with the lowest capacity, which is the cooking stage. The cooking stage has a yield loss of 20%, which means that only 80% of the dinners produced in the cooking stage will be available for packaging. This means that the actual output rate of the cooking stage is 60 * 0.8 = 48 dinners per hour.
Since the cooking stage is the bottleneck, the actual output rate of the entire process is also 48 dinners per hour. Therefore, the utilization at total output capacity is calculated as:
utilization = actual output rate / total output capacity = 48 / 60 = 0.8 = 80%
In summary, the maximum number of dinners that this process can output per hour is 60 dinners. The cooking stage is the bottleneck of the process, and the utilization at total output capacity is 80%.

Final soluton

The maximum amount of dinners that this process can output per hour is 150. The bottleneck is the oven, as it has the lowest capacity of 150 dinners per hour. The utilization at total output capacity is 75%, since the total output capacity is 200 dinners per hour (150 from the oven and 50 from the stovetop), but the actual output is 150 dinners per hour, leading to a utilization of 150/200 = 0.75, or 75%. The yield loss is not relevant for determining the maximum output per hour, as it affects the number of dinners produced, not the production rate.