Quiz on Section 3 Results for SevdanurGenc

Correct answers are hidden.

Score for this attempt: **12** out of 12

Submitted Jun 22 at 10:59pm

This attempt took 20 minutes.

Question 1

1 / 1 pts

How do you create a simulated annealing sampler in D-Wave assuming we have the following statement?

```
from neal import SimulatedAnnealingSampler
```

- sampler = SimulatedAnnealingSampler
- sampler = SimulatedAnnealler
- **sampler = SimulatedAnnealingSampler()**
- sampler = Simulated

Question 2

1 / 1 pts

Which one is not a valid parameter for the `sample` function ?

- binary quadratic model
- number of reads
- **ising model**
- beta schedule

Question 3

1 / 1 pts

Suppose we created a simulated annealing sampler named `sampler`. By using which function can you sample directly from an Ising model without creating a bqm?

- (●) sample_ising
- ( ) ising_sampler
- ( ) sample
- ( ) ising_sample

Question 4

1 / 1 pts

```
p = []
    for t in range(N):
        for i in range(N):
            if sample[f"x_{i}_{t}"] == 1:
                p.append(i)
```

Given that `x_i_t=1` if node i is visited at time t and 0 otherwise and a sample obtained as a result of solving a TSP instance with N cities using simulated annealing, suppose we execute the above piece of code. Which one of the following(s) is(are) true about `p`?

- [x] p may contain less than N integers

- [x] p may contain more than N integers
- [ ] p is always a permutation of integers between 0,..N-1
- [x] If the sample is feasible, p contains the list of visited cities.

Question 5

1 / 1 pts

```
for i in range(N):
        if sum(sample[f"x_{i}_{t}"] for t in range(N))!=1:
            return False
```

Given that `x_i_t=1` if node i is visited at time t and 0 otherwise and a sample obtained as a result of solving a TSP instance with N cities using simulated annealing, what is the above code performing?

- (•) It returns false if a node is not visited exactly once.
- ( ) It returns false if no node is visited at a time point.
- ( ) It returns false if a node is visited more than once.
- ( ) It returns false if more than one node is visited at a time.

Question 6

1 / 1 pts

```
    for i, j in edges:
        for c in colors:
            if sample[f"x_{i}_{c}"] == 1 and sample[f"x_{j}_{c}"] == 1:
                return False
```

Given that `x_i_c=1` if node i is colored with color c and 0 otherwise and a sample obtained as a result of solving a graph coloring instance using simulated annealing, what is the above code performing?

- it return false if a node is not colores
- it returns false if adjacent nodes are colored using the same color
- it return false if a node is colored using more than 1 color
- it returns false if adjacent nodes are colored using different colors

Question 7

1 / 1 pts

```
def sample_to_coloring(sample, colors, N):
    coloring = {}
    for i in range(N):
        for c in colors:
            if sample[f"x_{i}_{c}"] == 1:
                coloring[i]=c
    return coloring
```

Given that `x_i_c=1` if node i is colored with color c and 0 otherwise and a sample obtained as a result of solving a graph coloring instance with N nodes using simulated annealing, suppose we execute the above piece of code. Which one of the following(s) is(are) true about coloring?

- [x] coloring is a dictionary with keys as nodes and values as colors
- [ ] coloring can have more than N keys
- [ ] All colors appear exactly ones as the values of the coloring
- [x] coloring can have less than N keys

Question 8

1 / 1 pts

In D-Wave, interactions of the form $J_{ijk}s_is_js_k$can be implemented.

- True
- False

Question 9

1 / 1 pts

Adiabatic quantum computing is universal, i.e. you can simulate gate based quantum computers using adiabatic quantum computing.

- True
- False

Question 10

1 / 1 pts

Select the true statement(s).

- Chain break fraction is same for all samples in a sampleset
- chain_strength paraemeter determines the coupling coefficient between qubits in a chain.
- Chains are needed because not all qubits are connected in D-Wave QPUs.

One should set the chain_strength as high as possible to obtain good results.

Question 11

1 / 1 pts

How do you set the annealing time to 100 microseconds when calling the sample function?

- sampler.sample(bqm, num_reads=100)
- sampler.sample(bqm, num_reads=1000, annealing_time=100)
- sampler.sample(bqm, num_reads=1000, time=100)
- sampler.sample(bqm, num_reads=1000, anneal_time=100)

Question 12

1 / 1 pts

How do you create a sampler to sample from D-Wave default QPU?

- sampler = DWaveSampler("default"))
- sampler = DWave()
- sampler = DWaveSampler()
- sampler = DWaveQPU()

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