Survey 12

1. **Please give your name** *

   _____

2. **Please give your CUHK student ID** *

   _____

3. **How much of Assignment 11 have you completed?** *
   Mark only one oval.

   ( ) What? There is an assignment!?

   ( ) Seen it.

   ( ) Thought about it.

   ( ) Tried it.

   ( ) Finished it!!

4. **How many Course 3 Module 4 lectures have you watched?** *
   Mark only one oval.

   ( ) None

   ( ) 1

   ( ) 2-3

   ( ) All

5. **Which of the following statement(s) regarding complete (in CP) and local search is/are correct? You can tick more than one.** *
   Check all that apply.

   [ ] During complete search, the variable assignments are always compatible with all constraints

   [ ] During local search, the variable assignments are always compatible with all constraints

   [ ] During complete search, all variables are always assigned a value

   [ ] During local search, all variables are always assigned a value

   [ ] Complete search starts with the empty assignment and gradually extends it to a full assignment

   [ ] Local search starts with the empty assignment and gradually extends it to a full assignment

   [ ] Complete search starts with a full assignment and ends with a full assignment, which satisfies all constraints

   [ ] Local search starts with a full assignment and ends with a full assignment, which satisfies all constraints

6. **What is a "state" in local search?** *
Mark only one oval.

- ( ) a nation or territory considered as an organized political community under one government
- ( ) the particular condition that the discrete optimization problem is in at a specific time
- ( ) a partial assignment
- ( ) a full/complete assignment
- ( ) NONE of the above

7. **What is a "move" in local search?** *
Mark only one oval.

- ( ) a change of place
- ( ) a change of position
- ( ) a change of some variable assignment(s)
- ( ) a change of constraint
- ( ) NONE of the above

8. **What is the "neighbourhood" of a state in local search?** *
Mark only one oval.

- ( ) a district or community within a town or city
- ( ) the set of points whose distance from a given point is less than or equal to some value
- ( ) the set of states that are reachable in a move from the current state
- ( ) the set of moves to the current state
- ( ) NONE of the above

9. **Which of the following statements are correct regarding greedy and steepest descent local search? You can tick more than one.** *
Check all that apply.

- [ ] Greedy local search is guaranteed to reach a global optimal solution
- [ ] Steepest descent local search is guaranteed to reach a global optimal solution
- [ ] Greedy local search always chooses the best neighbour to move to
- [ ] Steepest descent local search always chooses the best neighbour to move to
- [ ] Greedy local search is always faster
- [ ] Steepest descent local search is always faster

10. **How can constraints be handled in local search? You can tick more than one.** *
Check all that apply.

- [ ] constraint violations as penalties
- [ ] constraints violations as assignments
- [ ] all search states satisfying all constraints
- [ ] all neighbourhood states satisfying all constraints
- [ ] initial state satisfying all constraints

11. **What is a strong local optima?** *

Mark only one oval.

- ⬭ a state which has an objective value that is better than those of all other states
- ⬭ a state which has an objective value that is better than or equal to those of all other states
- ⬭ a state which has an objective value that is better than those of all other states in its neighbourhood
- ⬭ a state which has an objective value that is better than or equal to those of all other states in its neighbourhood
- ⬭ NONE of the above

12. **What is a weak local optima?** *

Mark only one oval.

- ⬭ a state which has an objective value that is better than those of all other states
- ⬭ a state which has an objective value that is better than or equal to those of all other states
- ⬭ a state which has an objective value that is better than those of all other states in its neighbourhood
- ⬭ a state which has an objective value that is better than or equal to those of all other states in its neighbourhood
- ⬭ NONE of the above

13. **A plateau (flat landscape) is a strong local minimum.** *

Mark only one oval.

- ⬭ Yes
- ⬭ No
- ⬭ Maybe

14. **What of the following can help avoid/escape from local minima. You can take more than one.** *

Check all that apply.

- ☐ Branch and bound
- ☐ Restarts
- ☐ Conflict-based variable ordering
- ☐ Simulated annealing
- ☐ Tabu lists

15. **Which of the following is true about the DLM method? You can tick more than one.** *

Check all that apply.

- ☐ Constraint violations are represented as penalties
- ☐ Every penalty function is associated with a weight, called Lagrange Multiplier
- ☐ The problem objective is combined with the penalties to form a new objective
- ☐ DLM searches for global optima
- ☐ DLM searches for constrained local minima
- ☐ When search is trapped in a local minimum, the Lagrange Multipliers are incremented to help escape from the local minimum
- ☐ DLM can always find global optima

16. **What is a Constrained Local Minimum?** *

Mark only one oval.

- ( ) a neighbour of a global optimum
- ( ) a state with the best objective value
- ( ) a state with an objective value better than or equal to those of all other states in its neighbourhood
- ( ) a local minimum where the Lagrange Multipliers remain unchanged
- ( ) NONE of the above

17. **Which of the following is true about LNS? You can tick more than one.** *

Check all that apply.

- [ ] LNS is a local search method that makes use of complete search
- [ ] LNS is a complete search method that makes use of local search
- [ ] LNS can always find a global optimum
- [ ] LNS works best with a fixed search strategy
- [ ] LNS works best with an adaptive/random search strategy

18. **Have you attempted Workshop 12 yet?** *

Mark only one oval.

- ( ) No
- ( ) Thought about it
- ( ) Completed it

19. **How much of Assignment 12 have you completed?** *

Mark only one oval.

- ( ) What? There is another ASSIGNMENT!?
- ( ) Seen it.
- ( ) Thought about it.
- ( ) Tried it.
- ( ) Finished it!!

20. **This is the last survey question that you'll ever have to answer for the course. Do you enjoy the course? I hope you do. ;-)** *

Mark only one oval.

- ( ) Yes
- ( ) No
- ( ) Maybe