



# RAMA UNIVERSITY

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## FACULTY OF ENGINEERING AND TECHNOLOGY

### Soft Computing

### LECTURE -24

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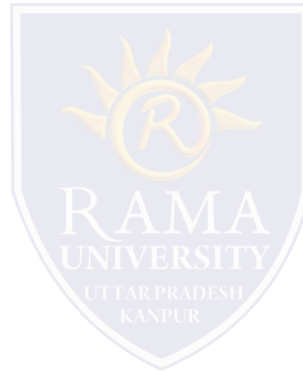
# OUTLINE

- **Fitness Function**
- **Selection**
- **References**



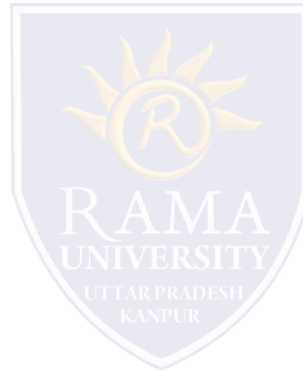
## Fitness Function

The fitness function determines how fit an individual is (the ability of an individual to compete with other individuals). It gives a fitness score to each individual. The probability that an individual will be selected for reproduction is based on its fitness score.



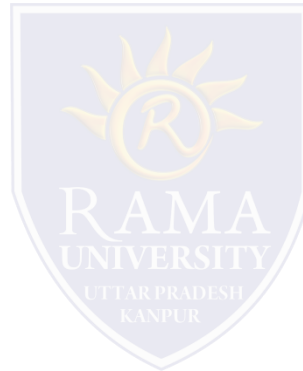
## Fitness Evaluation

- A fitness function is a particular type of objective function that prescribes the optimality of a solution in a genetic algorithm so that that particular chromosome may be ranked against all the other chromosomes.
- Fitness computation time of a single solution is extremely high,
- Precise model for fitness computation is missing,
- The fitness function is uncertain or noisy.



## Operator used for fitness computations or evaluation

- Selection
- Crossover
- Mutation
- Replacement
- Termination



## Selection operator

- Selection is the process of selecting two or more parents from the population for crossing.
- The purpose of selection is to emphasize fitter individuals in the population in hopes that their off springs have higher fitness.
- how to choose individuals in the population that will create offspring for the next generation and how many offspring each will create.
- Selection is a method that randomly picks chromosomes out of the population according to their evaluation function



# MULTIPLE CHOICE QUESTION

1. What is the name for information sent from robot sensors to robot controllers?

- a) temperature
- b) pressure
- c) feedback
- d) signal

2. Which of the following terms refers to the rotational motion of a robot arm?

- a) swivel
- b) axle
- c) retrograde
- d) roll

3. What is the name for space inside which a robot unit operates?

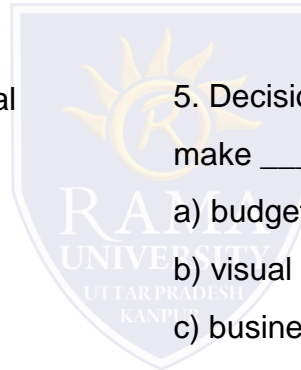
- a) environment
- b) spatial base
- c) work envelope
- d) exclusion zone

4. Which of the following terms IS NOT one of the five basic parts of a robot?

- a) peripheral tools
- b) end effectors
- c) controller
- d) drive

5. Decision support programs are designed to help managers make \_\_\_\_\_

- a) budget projections
- b) visual presentations
- c) business decisions
- d) vacation schedules



# REFERENCES

❑ [https://shodhganga.inflibnet.ac.in/bitstream/10603/41504/12/12\\_chapter%202.pdf](https://shodhganga.inflibnet.ac.in/bitstream/10603/41504/12/12_chapter%202.pdf)

