Quiz- I

Any number of options can be correct in Multiple choice questions. The marks will be given only if all correct options have been marked.
x^n denotes the x to the power n

* Indicates required question

Email *

- [ ] Record **g24ait2113@iitj.ac.in** as the email to be included with my response

Which the following vectors are the convex combination of the vectors in the set { (1,0,0), (1,1,0), (1,1,1)} ? 2 points

- [ ] (1,1,1)
- [ ] (1,2,3)
- [ ] (3,2,1)
- [ ] (1,2/3, 1/3)

Name *

Your answer

Registration number *

Your answer

x^n denotes the x to the power n.
Which of the following sets are convex sets? 2 points

- [ ] {(x,y) | x>0}
- [ ] { (x,y) | x>0, y>0, x+y <1}
- [ ] { (x,y) | x^2+y^2 >1 and x^2+y^2 <4}
- [ ] { (x,y) | x>y, x^2+y^2 <1}

(A) If a function has finite number of local minima, then it has a global minima 2 points
(B) If a function has a global minima, then it has only finite number of local minima.

Mark the correct option.

- [ ] Only (A) is true
- [ ] Only (B) is true
- [ ] Both statements are false
- [ ] Both statements are true

While minimising a function f(x) in the interval [0,2] with an error in optimal solution not more than 0.3 using Fibonacci search method, What ratio of Fibonacci numbers F(n-1)/F(n), You will use to find the points of evaluations in the first itration? 2 points

- [ ] 89/144
- [ ] 55/89
- [ ] 55/34
- [ ] 34/21

Minimise a function f(x) in the interval [0,2] with an error in optimal solution not more than 0.3 using Fibonacci search method and Golden section Method. 2 points

Mark the correct options.

- [ ] Fibonacci search Method is expected to minimise the function in fewer iterations than Golden Section Method.
- [ ] Golden Section Method is expected to minimise the function in fewer iterations than Fibonacci search Method
- [ ] Fibonacci search Method is easier to apply than Golden section Method
- [ ] Golden section Method is easier to apply than Fibonacci search Method.

Find all the stationary points of the following function and classify them as local minima, local maxima or saddle points. 5 points

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$$f(x,y) = (x^2 + y^2 - 1)^2 + (x^2 - 1)^2$$

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