1. The examination is of 3 hours duration. The paper consists of 60 questions carrying 100 marks. The paper is divided into three sections, **A, B** and **C**, all of which are compulsory./  
  
2. **Section – A** comprises **30 Multiple Choice Questions (MCQ)**. Each MCQ type question has four choices, out of which only **ONE** is correct. Questions Q.1 – Q.30 belong to this section and carry a total of 50 marks. Q.1 – Q.10 carry 1 mark each and Questions Q.11 – Q.30 carry 2 marks each./  
  
3. **Section – B** comprises 10 **Multiple Select Questions (MSQ)**. Each MSQ type question has **ONE or MORE THAN ONE** choice(s) that is/are correct out of the four given choices. The candidate has to select **ALL** correct choices. Questions Q.31 – Q.40 belong to this section and carry 2 marks each with a total of 20 marks./  
4. **Section – C** comprises 20 **Numerical Answer Type (NAT)** questions. For these questions, the answer is a real number which needs to be entered using the virtual keyboard provided on the computer screen. Questions Q.41 – Q.60 belong to this section and carry a total of 30 marks. Q.41 – Q.50 carry 1 mark each and Questions Q.51 – Q.60 carry 2 marks each./  
  
5. Questions that are not attempted will result in zero marks. In **Section – A** (MCQ), wrong answers will result in **NEGATIVE** marks. For 1-mark MCQ, 1/3 marks will be deducted for a wrong answer. For 2- marks MCQ, 2/3 marks will be deducted for a wrong answer. In **Section – B** (MSQ), there is **NO NEGATIVE** or **PARTIAL** marking. There is **NO NEGATIVE** marking in Section – C (NAT) as well./  
  
6. A **Virtual Scientific Calculator** is provided on your computer screen. Any other calculators, charts, graph sheets, tables, watches, bags, pouches, Bluetooth devices, cellular phones or electronic gadgets are **NOT** allowed inside the examination hall./  
  
7. Use only the scribble pad provided in the examination hall for all rough work. Write your name and registration number on the scribble pad before using it. The scribble pad MUST be returned to the invigilators after the end of the examination./  
N = {1*,*2*, . . .*}./  
Z = {*. . . ,*−2*,*−1*,*0*,*1*,*2*, . . .*}./  
Q = the set of rational numbers./  
R = the set of real numbers./  
R*n*= the *n*-dimensional real space with the Euclidean topology./  
C = the set of complex numbers./  
C*n*= the *n*-dimensional complex space with the Euclidean topology./  
*Mn*(R)*, Mn*(C) = the vector space of *n*× *n*real or complex matrices, respectively./  
*fl, f ll*= the first and second derivatives of the function *f*, respectively./  
  
*f*(*n*) = the *n*th. derivative of the function *f*./  
J*C*stands for the line integral over the curve *C*./  
*In*= the *n*× *n*identity matrix./  
*A−*1 = the inverse of an invertible matrix *A*. *Sn*= the permutation group on *n*symbols./  
ˆ*i*= (1*,*0*,*0)*,*ˆ*j*= (0*,*1*,*0) and *k*ˆ = (0*,*0*,*1)./  
ln *x*= the natural logarithm of *x*(to the base *e*)./  
  
|*X*| = the number of elements in a finite set *X*./  
Z*n*= the additive group of integers modulo *n*./  
arctan(*x*) denotes the unique *θ*∈ (−*π/*2*, π/*2) such that tan *θ*= *x*./  
All vector spaces are over the real or complex field, unless otherwise stated./