

**YASHWANTRAO CHAVAN MAHARASHTRA OPEN UNIVERSITY, NASIK**

**HOME ASSIGNMENT**

**(2016-17)**

**M.Sc. Mathematics (V57)**

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**Instructions for the Students:**

- 1) All Questions are compulsory.
  - 2) Each Sub-question carries 5 marks.
  - 3) Each Sub-question should be answered between 75 to 100 words. Write every question's answer on separate page.
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**SEMESTER II**

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**Linear Algebra (S24021)**

- Q.1. Explain symmetric bilinear forms example. 5M
- Q.2. what is bilinear form Write its example. 5M
- Q.3. Explain vector space and subspace with example. 5M
- Q.4. Write about triangular form and lemma using example . 5M
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**Topology (S24022)**

- Q.1. Write the chain rule using one example. 5M
- Q.2. What is derivative? Write derivative of standard function. 5M
- Q.3. Explain differentiation of parametric function 5M
- Q.4. Write the derivatives as rate measure using example . 5M
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**Complex analysis (S24023)**

- Q.1. Explain complex plane with one example. 5M
- Q.2. Prove that every mobius transformation can have at most two fixed points. 5M
- Q.3. Explain real integral using residue theorem . 5M
- Q.4. Write the derivatives as rate measure using example . 5M
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### **Numerical Analysis (S24024)**

- Q.1. Explain errors with one example. 5M
- Q.2. Describe numerical integration. 5M
- Q.3. Explain birge vieta method. 5M
- Q.4. Write about numerical differentiation using example . 5M
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### **Differential Geometry (S24025)**

- Q.1. Explain directional derivative with one example. 5M
- Q.2. Find the unit parameterization of a circle of radius  $r$  and hence  
compute the tangent vector field of the curve. 5M
- Q.3. Explain spherical curves. 5M
- Q.4. Write about quadratic approximation of a surface using example. 5M
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