



**A-1443**

**M. Sc. (Tech.) (In Instrumentation) (Sem. III)  
Examination**

**March / April – 2015**

**Paper - INS 531 : Electronics Machines & Power Electronic**

Time : 3 Hours]

[Total Marks : 70

**Instructions :**

(1)

नीचे दशांशके निशानीवाणी विगतो उत्तरवडी पर अवश्य कपवी. Fillup strictly the details of signs on your answer book.	Seat No. :
Name of the Examination :	<input type="text"/>
<input type="text" value="M. Sc. (Tech.) (In Instrumentation) (Sem. III)"/>	<input type="text"/>
Name of the Subject :	<input type="text"/>
<input type="text" value="Paper - INS 531 : Electronics Machines &amp; Power Electronic"/>	<input type="text"/>
Subject Code No. : <input type="text" value="1"/> <input type="text" value="4"/> <input type="text" value="4"/> <input type="text" value="3"/>	<input type="text"/>
Section No. (1, 2,.....): <input type="text" value="Nil"/>	
Student's Signature	

- (2) All questions are compulsory.  
(3) Draw diagram where necessary.  
(4) Assume data where necessary.

- 1 (a) Give the short answer of following questions : 7
- (1) Define back EMF.
  - (2) Why carbon brushes are used in DC motors?
  - (3) Draw V-I characteristics of diac.
  - (4) What is freewheeling diode?
  - (5) List out the applications of choppers.
  - (6) Define inverter.
  - (7) Write full-form of LASCR and SITH.
- (b) Explain in detail construction of DC machine with diagram. 7
- OR**
- (b) Explain in detail construction of Universal motor.
- 2 (a) Write short note on starting methods of induction motor. 7
- OR**
- (a) Explain torque slip characteristics of induction motor.
- (b) Explain construction of synchronous machine in detail. 7
- OR**
- (b) Explain V-curve and inverted V- curves for 7  
synchronous motor.

- 3 (a) Write short note on characteristics of SCR. 7
- OR**
- (a) Write short note on GTO.  
(b) Explain in detail dual converter. 7
- OR**
- (b) Explain single phase full wave bridge converter.
- 4 (a) Explain single phase current source inverter in detail. 7
- OR**
- (a) Explain snubber circuit for thyristor protection.  
(b) Explain multiphase chopper. 7
- OR**
- (b) Explain speed control for DC shunt motor.
- 5 (a) Enlist various thyristor triggering method. Explain any one in detail. 7
- OR**
- (a) SCRs with rating of 1000 V and 200 A are available to be used in string to handle 6 kV and 1 kA. Calculate the number of series and parallel units required in string. Take de-rating factor 0.1.  
(b) Derive the expression for EMF equation of DC motor. 7
- OR**
- (b) Derive the expression for torque equation of DC motor.