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| **Department of Electrical Engineering**  **Assignment**  **Date: 20/08/2020**  **Course Details** | | | |
| **Course Title:** | Machine 2 | **Module:** | B-Tech |
| **Instructor:** |  | **Total Marks:** | 30 |
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**Student Details**

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| **Name:** |  | **Student ID:** |  |

**(Q1)**Fill in the blanks?(5 Marks)

(1)Induction motor was invented by ………………………. In …………..

(2)The Stator of the induction motor is ,in principle ,the same as that of ……………………………

(3)Greater the no of poles in induction machine ……………..the speed.

(4)The stator winding when supplied with three phase currents,produce a magnetic flux which has ……………………..magnitude.

(5)Motors employing wound rotor are known as ……………………. Motors.

**(Q2)**Multiple choice questions?(5 Marks)

(1)Regarding skewing of motor bars in squirrel cage induction motor ,which statement is false?

(a)it prevents cogging (b)it increases starting torque (c)it produces more uniform torque (d)it reduces motor ‘hum’ during its operation

(2)The principle of operation of a 3-phase induction motor is most similar to that of a

(a)synchronous motor (b)repulsion start induction motor (c)transformer with a shorted secondary (d)capacitor –start ,induction run motors

(3)The magnetizing current drawn by transformers and induction motors is the cause of their ………………….. power factor

(a)zero (b)unity (c)lagging (d)leading

(4)The effect of increasing the length of air-gap in an induction motor will be to increase the

(a)power factor (b)speed (c)magnetizing current (d)air gap flux

(5)In a three phase induction motor,the relative speed of stator flux with respect to ………………… is zero.

(a)stator winding (b)rotor (c)rotor flux (d)space

**(Q3)**In case of AC generator the input domain is mechanical,identify the potential and kinetic variable for input and output and explain the relationship of input and output?(5 Marks)

**(Q4)**Is it true that conduction takes place in ac machines.Back your reason with valid facts?Explain the working of synchrounous machines and give solid reason why it uses separate dc source?(5 Marks)

**(Q5)**The stator of a three Phase induction motor has 6 slots per pole per phase.If supply frequency is 60Hz.Calculate the number of stator poles produced and total number of slots on the stator.Calculate the speed of the rotating stator flux?(5 Marks)

**(Q6)**3-Phase ,50Hz ,8 pole ,induction motor has full load slip of 2%.The rotor resistance and stand still rotor –reactance per phase are 0.001 ohm and 0.005 ohm respectively.Find the ratio of the maximum to full load torque and the speed at which the maximum torque occurs? (5 Marks)