**SUBJECT CODE NO:- P-307**
**FACULTY OF ENGINEERING AND TECHNOLOGY**
**S.E. (Mech/Prod) Examination May/June 2017**
**Electrical Machine & Applied Electronics**
**(Revised)**

**[Time: Three Hours]** **[Max.Marks:80]**

Please check whether you have got the right question paper.

N.B
i. Q. No 1 and Q. No 6 are compulsory.
ii. Solve any two questions from remaining questions in each section.
iii. Assume suitable data, wherever necessary.

Section A

Q.1 Solve any five 10
a) Give the selection criteria of electric drive.
b) What are the advantage of DC series motor?
c) Define back e.m.f. What is significance of it?
d) Explain the necessity of starter in DC motor.
e) Differentiate between electrical and mechanical drive.
f) State the principle of operation of single phase induction motor. What are its applications?
g) Explain the concept of plugging.
h) Enlist different methods of speed control in induction motor.

Q.2 a) Explain the application of electric drive for steel mill. 07
b) What are the different electric breaking methods used in DC motors. Explain. 08

Q.3 a) Classify AC machines: explain slip ring induction motor. 08
b) Explain the construction and working of 3 – phase induction motor. 07

Q.4 a) What are the types of starter for induction motor? Explain autotransformer starter. 08
b) Derive the expression for the cooling of the machine. Also define cooling time constant. 07

Q.5 Write a short note on 15
a) Star – delta starter
b) Rotating magnetic field.

Section B

Q.6 Solve any five 10
a) How do you select a sensor?
b) What is seebeck effect?
c) Draw a neat circuit diagram of light Dimmer.
d) Enlist different triggering methods of SCR.
e) What is actuator? What are its types?
f) Differentiate between depletion and enhancement type of MOSFET.
g) Explain the use of heat sink.
h) Define
i. Holding current &
ii. Latching current in SCR

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| Q.7 | a) | State Piezoelectric effect. Explain with neat schematic piezoelectric sensor. | 07 |
| | b) | What is mosfet? Explain its construction & working. | 08 |
| Q.8 | a) | Draw & explain solenoid valve. | 07 |
| | b) | With neat diagram explain optocoupler. Draw its types. | 08 |
| Q.9 | a) | Define temperature sensor. Explain thermocouple. | 08 |
| | b) | Explain shaft encoder – decoder sensor. | 07 |
| Q.10 | Write a short notes on | | 15 |
| | a) | 7 – segment display | |
| | b) | Air flow sensor | |

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