



PAPER ID-410573

Printed Page: 1 of 2

Subject Code: KEE061

Roll No:

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

BTECH
(SEM VI) THEORY EXAMINATION 2023-24
SPECIAL ELECTRICAL MACHINES

TIME: 3 HRS**M.MARKS: 100**

Note: 1. Attempt all Sections. If require any missing data; then choose suitably.

SECTION A**1. Attempt all questions in brief.****2 x 10 = 20**

Q no.	Question	Marks	CO
a.	Which type of generator used in wind energy and why?	02	1
b.	Draw the torque speed characteristics of two phase AC Servomotor.	02	1
c.	Calculate the stepping angle for 3-stack, 16 tooth variable reluctance motor.	02	2
d.	What do you mean by closed loop control?	02	2
e.	Classify the conditions for successful operation of switched reluctance motor.	02	3
f.	How Switched reluctance motor differ from synchronous reluctance motor?	02	3
g.	Discuss different types of rotors used in PMBLDC motor?	02	4
h.	How can the direction of rotation of a PMDC motor can be reversed?	02	4
i.	How does switched reluctance motor differ from synchrorus reluctance motor?	02	5
j.	Draw the torque-slip characteristic of hysteresis motor.	02	5

SECTION B**2. Attempt any three of the following:****3 x 10 = 30**

a.	Explain detailed working of doubly excited induction generator.	10	1
b.	With the help of diagram explain the construction and working principle of multi stack Variable Reluctance Stepper motor.	10	2
c.	Explain the working of switched reluctance motor in detail and derive torque equation.	10	3
d.	Explain the speed control of PMBLDC machine working for motoring and regenerative braking.	10	4
e.	Explain construction and working of universal motor.	10	5

SECTION C**3. Attempt any one part of the following:****1 x 10 = 10**

a.	Explain the constant power and constant torque control of induction motor	10	1
b.	Demonstrate the performance analysis of two phase AC Servomotor	10	1

4. Attempt any one part of the following:**1 x 10 = 10**

a.	Explain the concepts of open-loop and closed-loop control systems for stepper motors using microprocessor-based control circuits.	10	2
b.	Drive the torque equation of stepper motor and Draw the different performance characteristics of stepper motor	10	2



PAPER ID-410573

Printed Page: 2 of 2

Subject Code: KEE061

Roll No:

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

BTECH
(SEM VI) THEORY EXAMINATION 2023-24
SPECIAL ELECTRICAL MACHINES

TIME: 3 HRS**M.MARKS: 100****5. Attempt any one part of the following:****1 x 10 = 10**

a.	Explain the construction and working principle of linear switched reluctance motor (SRM) .	10	3
b.	Explain sensor less operation of switched reluctance motor.	10	3

6. Attempt any one part of the following:**1 x 10 = 10**

a.	Explain in detail about sinusoidal PMAC motor. Also give its applications.	10	4
b.	Explain the construction and principle of operation of PMBLDC motor.	10	4

7. Attempt any one part of the following:**1 x 10 = 10**

a.	Explain the construction and principle of operation of a Hysteresis motor.	10	5
b.	Explain construction and working of repulsion motor.	10	5

QP24EP1_068

/ 24-Jun-2024 9:05:51 AM | 103.248.120.243