

Unit 11 - Week 8

Course outline
How to access the portal
Study Materials
Week 0 Assignment 0
Week 1
Week 2
Week 3
Week 4
Week 5
Week 6
Week 7
Week 8
Week 9
Week 10
Week 11
Week 12
Download Videos
Detail Solution
Live Session

Week 8 Assignment 8

The due date for submitting this assignment has passed.
As per our records you have not submitted this assignment.

Due on 2019-09-25, 23:59 IST.

1) A shunt machine, connected to 250V mains has an armature resistance (including brushes) of 0.12Ω , and the resistance of the field circuit is 100Ω . Find the ratio of the speed as a generator to the speed as a motor, the line current in each case being 80A.

No, the answer is incorrect.
Score: 0

Accepted Answers:
(Type: Range) 1.04,1.12

1 point

Common data for Question 2 to 3

The armature of a 2-pole, 200V generator has 400 conductors and runs at 300 r.p.m.

2) Calculate the useful flux per pole (in Wb).

No, the answer is incorrect.
Score: 0

Accepted Answers:
(Type: Range) 0.08,0.12

1 point

3) If the number of turns in each field coil is 1200, what is the average value of the electromotive force (in V) induced in each coil on breaking the field current if the flux dies away completely in 0.1 sec?

No, the answer is incorrect.
Score: 0

Accepted Answers:
(Type: Range) 1175,1225

1 point

Common data for question 4 to 6

A 1500kW, 550V 16-pole generator runs at 150 r.p.m. There are 2500 lap-connected conductors. Full load copper loss is 25kW.

4) What must be the useful flux per pole (in Wb)?

No, the answer is incorrect.
Score: 0

Accepted Answers:
(Type: Range) 0.0795,0.0995

1 point

5) Calculate the area (in cm^2) of the pole shoe if the gap density has a uniform value of 0.9 Wb/m^2 .

No, the answer is incorrect.
Score: 0

Accepted Answers:
(Type: Range) 944,1044

1 point

6) Find the no-load terminal voltage (in V), neglecting armature reaction and change in speed

No, the answer is incorrect.
Score: 0

Accepted Answers:
(Type: Range) 549.2,569.2

1 point

7) A 2-pole 500V, shunt motor has 720 conductors on its armature. The full load armature current is 60A and the flux per pole is 0.03Wb . The armature resistance is 0.2Ω and the contact drop is 1V per brush. Calculate the full load speed of the motor (in r.p.m.)

No, the answer is incorrect.
Score: 0

Accepted Answers:
(Type: Range) 1325,1375

1 point

Common data for Question 8 to 9

A 2-pole, shunt motor has 472 armature conductors. The flux per pole for a field current of 2A is 36mWb and for 4A is 42mWb . The field resistance is 125Ω . The no-load armature resistance drop is negligible.

8) Calculate the no-load speed (in r.p.m.) of the motor with a terminal voltage of 500V.

No, the answer is incorrect.
Score: 0

Accepted Answers:
(Type: Range) 1482,1542

1 point

9) Calculate the no-load speed (in r.p.m.) of the motor with a terminal voltage of 250V.

No, the answer is incorrect.
Score: 0

Accepted Answers:
(Type: Range) 867,897

1 point

Common data for Question 10 to 13

A 240-V, unsaturated shunt motor has an armature resistance (including brushes) of 0.04Ω and a field resistance of 100Ω . It is rotating at a speed of 1200 r.p.m.

10) Find what resistance (in Ω) must be added to the field circuit to increase the speed from 1200 r.p.m. to 1500 r.p.m. when the armature current is 200A.

No, the answer is incorrect.
Score: 0

Accepted Answers:
(Type: Range) 23,27

1 point

11) With the field resistance as in Question 10 (i.e. with the added resistance), find the speed (in r.p.m.) when the armature current is 100A.

No, the answer is incorrect.
Score: 0

Accepted Answers:
(Type: Range) 1520,1532

1 point

12) If the machine is run as a generator to give 200A armature current at 240V, find the field current (in A) at 1200 r.p.m..

No, the answer is incorrect.
Score: 0

Accepted Answers:
(Type: Range) 2.27,2.87

1 point

13) If the machine is run as a generator to give 200A armature current at 240V, with a 2A field current, find the speed (in r.p.m.)

No, the answer is incorrect.
Score: 0

Accepted Answers:
(Type: Range) 1530,1550

1 point

14) A shunt generator delivers 50kW at 250V and 400 r.p.m.. The armature and the field resistances are 0.02Ω and 50Ω respectively. Calculate the speed of the machine running as a shunt motor and taking 50kW input at 250V. Allow 1V per brush for contact drop.

No, the answer is incorrect.
Score: 0

Accepted Answers:
(Type: Range) 371,391

1 point