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Unit 10 - Week 8

Assignment 8

The due date for submitting this assignment has passed. **Due on 2019-03-27, 23:59 IST**
As per our records you have not submitted this assignment.

1) ***1 point***

Consider a 60 Hz, two area power system connected by a tie-line with the followi characteristics:

	Area 1	Area 2
R (speed regulation)	0.01 pu	0.02 pu
D(frequency sensitivity of load)	0.8 pu	1.0 pu
Base MVA	500	500

A load increase of 100 MW occurs in area 1. Find out the steady-state frequency (in Hz) af the load change.

a. 59.88

b. 59.92

c. 60.08

d. 60.12

- a
- b
- c
- d

No, the answer is incorrect.
Score: 0

Accepted Answers:
b

2) ***1 point***

Consider a 60 Hz, two area power system connected by a tie-line with the following characteristics:

	Area 1	Area 2
R (speed regulation)	0.01 pu	0.02 pu
D(frequency sensitivity of load)	0.8 pu	1.0 pu
Base MVA	500	500

A load increase of 100 MW occurs in area 1. Choose the correct option regarding the change in the tie-line power flow.

a. Tie line power flow form area 2 to area 1 will be increased.

b. Tie line power flow form area 1 to area 2 will be increased.

c. There is no change in the tie-line power flow.

d. Cannot be ascertained as data is insufficient.

- a
- b
- c
- d

No, the answer is incorrect.
Score: 0

Accepted Answers:
a

3) ***1 point***

Consider a 60 Hz, two area power system connected by a tie-line with the following characteristics:

	Area 1	Area 2
R (speed regulation)	0.01 pu	0.02 pu
D(frequency sensitivity of load)	0.8 pu	1.0 pu
Base MVA	500	500

A load increase of 100 MW occurs in area 1. What is the magnitude of the change in tie-line power flow at steady-state?

a. 0

b. 33.4 MW

c. 33.6 MW

d. 100 MW

- a
- b
- c
- d

No, the answer is incorrect.
Score: 0

Accepted Answers:

c

4) ***1 point***

Consider a 60 Hz, two area power system connected by a tie-line with the following characteristics:

	Area 1	Area 2
R (speed regulation)	0.01 pu	0.02 pu
D(frequency sensitivity of load)	0.8 pu	1.0 pu
Base MVA	500	500

A load increase of 100 MW occurs in area 1. What is the steady-state change in the mechanica power output (in MW) of the prime mover in area 1?

a. 32.9 – 33.0

b. 33.5 – 33.6

c. 98.8 – 98.9

d. 65.8 – 65.9

- a
- b
- c
- d

No, the answer is incorrect.
Score: 0

Accepted Answers:

d

5) ***1 point***

Consider a 60 Hz, two area power system connected by a tie-line with the following characteristics:

	Area 1	Area 2
R (speed regulation)	0.01 pu	0.02 pu
D(frequency sensitivity of load)	0.8 pu	1.0 pu
Base MVA	500	500

A load increase of 100 MW occurs in area 1. What is the steady-state change in the mechanica power output (in MW) of the prime mover in area 2?

a. 32.9 – 33.0

b. 33.5 – 33.6

c. 98.8 – 98.9

d. 65.8 – 65.9

- a
- b
- c

d

No, the answer is incorrect.
Score: 0

Accepted Answers:
a

6) **1 point**

Consider a 60 Hz, two area power system connected by a tie-line with the follevin characteristics:

	Area 1	Area 2
R (speed regulation)	0.01 pu	0.02 pu
D(frequency sensitivity of load)	0.8 pu	1.0 pu
Base MVA	500	500

A load increase of 100 MW occurs in area 1. What is the steady-state change in the total load i area 1 (in MW) due to change in frequency?

a. 0.32 – 0.34

b. 0.65 – 0.67

c. 0.52 - 0.54

d. 0.60 – 0.62

a
b
c
d

No, the answer is incorrect.
Score: 0

Accepted Answers:
c

7) **1 point**

Consider a 60 Hz, two area power system connected by a tie-line with the following characteristics:

	Area 1	Area 2
R (speed regulation)	0.01 pu	0.02 pu
D(frequency sensitivity of load)	0.8 pu	1.0 pu
Base MVA	500	500

A load increase of 100 MW occurs in area 1. What is the steady-state change in the total load in area 2 (in MW) due to change in frequency?

a. 0.32 – 0.34

b. 0.65 – 0.67

c. 0.52 - 0.54

d. 0.60 – 0.62

- a
- b
- c
- d

No, the answer is incorrect.
Score: 0

Accepted Answers:
b

8) ***1 point***

The objective of Automatic Generation Control (AGC) is:

i. To hold system frequency at or very close to a specified nominal value.
ii. To maintain the correct value of interchange power between control areas.
iii. To maintain each unit's generation at the most economic value.

a. Only i
b. Only ii
c. i & ii
d. i, ii & iii

- a
- b
- c
- d

No, the answer is incorrect.
Score: 0

Accepted Answers:
d

9) ***1 point***

Consider a two area power system connected by a tie-line. At a certain time instant, it i observed that the frequency of the system has increased and the power flow in the tie-line fron Area 2 to Area 1 has decreased. What could be the possible reason for the above change?

a. Generation in Area 1 has decreased
b. Load in Area 1 has decreased
c. Generation in Area 2 has decreased.
d. Load in Area 2 has decreased.

- a
- b
- c
- d

No, the answer is incorrect.
Score: 0

Accepted Answers:
b

10) ***1 point***

A 60 Hz small system consists of 4 identical 500 MVA generating units feeding a total load o 1020 MW. The inertia constant H of each unit is 5.0 on 500 MVA base. The total load varies by 1.5% for 1% change in frequency. The speed regulation characteristic R is 2.40 Hz/p.u MW When there is a sudden drop in load by 20 MW, find the steady-state frequency (in Hz) assuming that the speed-governor loop is active.

a. 59.977
b. 60.800
c. 60.029
d. 60.023

- a
- b
- c
- d

No, the answer is incorrect.
Score: 0

Accepted Answers:
d

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