G.PULLAIAH COLLEGE OF ENGINEERING & TECHNOLOGY (AT), KURNOOL
B.Tech – III-IISemester (R15) MID- I Examinations
Branch: EEE

SET 1

Sub:Power System Protection Date:03-03-2018
Time:1½ Hrs. Max Marks: 30M

Question 1 is compulsory. Answer one from 2 or 3 and one from 4 or 5.

S.No	Questions	Marks	Unit	CO	Cognitive Level
1.i)	What is the need for protection for power system?	2	2	C404.1	Remember
1.ii)	Tabulate the frequency of occurrence of different types of faults in transformers?	2	2	C404.2	Remember
1.iii)	State the reason for noisy working of attracted armature relay. How do you overcome this Difficulty?	2	1	C404.2	Analyze
1.iv)	Enumerate the various faults that may occur in an alternator?	2	2	C404.2	Remember
1.v)	State the PSM of a relay?	2	1	C404.1	Remember
2)	Elucidate constructional details of attracted and induction type relays?	10	1	C404.2	Remember
3)	Explain the percentage differential protection method against the protection of transformer with neat diagram?	10	2	C404.2	Understand
4)	The neutral point of a 3-phase 20 MVA, 11Kv alternator through a resistance of 5Ω, the relay is set to operate for a pick-up current of 1.5A just above.The CT's have a ratio of 1000/5A. What is the percentage of winding protected? Also find the earthing resistance required to protect 90% of the phase winding?	10	1	C404.2	Apply&Analyze
5)	For a 50 MVA, 132kV/6.6kV power transformer with Δ – Y (Delta – Star) connections, obtain the CT's ratios on L.V. side of the transformer if the current ratio of CT's on H.V. side is 200/5A?	10	2	C404.2	Analyze&Apply

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B.Tech – III-II Semester (R15) MID- I Examinations

Branch: EEE

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5)	For a 50 MVA, 132kV/6.6kV power transformer with Δ – Y (Delta – Star) connections, obtain the CT's ratios on L.V. side of the transformer if the current ratio of CT's on H.V. side is 200/5A?	10	2	C404.2	Analyze&Apply

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SET 2

Sub: Power System Protection — Date:03-03-2018
Time: 1½ Hrs. — Max Marks: 30M

Question 1 is compulsory. Answer one from 2 or 3 and one from 4 or 5.

S.No	Questions	Marks	Unit	CO	Cognitive Level
1.i)	What are the characteristics required for a good relay for the protection of power system?	2	1	C404.1	Apply
1.ii)	List out the various types of faults in power systems?	2	1	C404.1	Remember
1.iii)	State the reason for noisy working of attracted armature relay. How do you overcome this difficulty?	2	1	C404.2	Analyze
1.iv)	Draw the charactersistics of impedance rely using R-X diagram?	2	1	C404.2	Remember
1.v)	Describe the Impedance relay characteristic?	2	1	C404.1	Analyze
2)	Discuss about differential protection scheme for transformers?	10	2	C404.2	Analyze
3)	For a 50 MVA, 132kV/6.6kV power transformer with Δ – Y (Delta – Star) connections, obtain the CT's ratios on H.V. side of the transformer if the current ratio of CT's on L.V. side is 180/5A?	10	2	C404.2	Analyze&Apply
4)	Explain the working of differential relay in detail with a neat diagram?	10	1	C404.1	Understand
5)	The neutral point of a 3-phase 20 MVA, 11Kv alternator through a resistance of 5Ω, the relay is set to operate for a pick-up current of 1.5A just above.The CT's have a ratio of 1000/5A. What is the percentage of winding protected? Also find the earthing resistance required to protect 90% of the phase winding?	10	1	C404.2	Apply&Analyze

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B.Tech – III-II Semester (R15) MID- I Examinations

SET 2

Branch: EEE

Sub: Power System Protection | Date:03-03-2018

Time: 1½ Hrs. | Max Marks: 30M

Question 1 is compulsory. Answer one from 2 or 3 and one from 4 or 5.

S.No	Questions	Marks	Unit	CO	Cognitive Level
1.i)	What are the characteristics required for a good relay for the protection of power system?	2	1	C404.1	Apply
1.ii)	List out the various types of faults in power systems?	2	1	C404.1	Remember
1.iii)	State the reason for noisy working of attracted armature relay. How do you overcome this difficulty?	2	1	C404.2	Analyze
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Sub: Power System Protection | Date:03-03-2018

Time: 1½ Hrs. | Max Marks: 30M

Question 1 is compulsory. Answer one from 2 or 3 and one from 4 or 5.

		Marks	Unit	CO	Cognitive Level
1.i)	Describe the equation for impedance relay from universal torque equation?	2	1	C404.1	Apply
1.ii)	Tabulate CT's connections for matching currents with respect to Power transformer Connections?	2	1	C404.2	Remember
1.iii)	Write any two functions of protective relaying?	2	1	C404.1	Remember
1.iv)	Differentiate between primary and backup protection?	2	2	C404.1	Analyse
1.v)	State and explain TSM of relay?	2	1	C404.1	Analyse
2)	For a 50 MVA, 132kV/6.6kV power transformer with Δ – Y (Delta – Star) connections, obtain the CT's ratios on L.V. side of the transformer if the current ratio of CT's on H.V. side is 200/5A?	10	1	C404.2	Analyse
3)	Depict and explain the percentage differential protection method of star/delta power Transformer?	10	2	C404.2	Understand
4)	A 3 phase, 2 pole 11kV alternator has neutral earthed through a resistance of 6 ohm. Themachine has current balance protection which operates upon out of balance current exceed 10% of full load. Determine the % of winding protected and unprotected against earth fault?	10	2	C404.2	Analyze&Apply
5)	Analyze stator inter- turn fault protection method for alternator?	10	2	C404.2	Analyse

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Branch: EEE

Sub: Power System Protection Date:07-03-2017

Time: 1½ Hrs. Max Marks: 30M

Question 1 is compulsory. Answer one from 2 or 3 and one from 4 or 5.

		Marks	Unit	CO	Cognitive Level
1.i)	Describe the equation for impedance relay from universal torque equation?	2	1	C404.1	Apply
1.ii)	Tabulate CT's connections for matching currents with respect to Power transformer Connections?	2	1	C404.2	Remember
1.iii)	Write any two functions of protective relaying?	2	1	C404.1	Remember
1.iv)	Differentiate between primary and backup protection?	2	2	C404.1	Analyse
1.v)	State and explain TSM of relay?	2	1	C404.1	Analyse
2)	For a 50 MVA, 132kV/6.6kV power transformer with Δ – Y (Delta – Star) connections, obtain the CT's ratios on L.V. side of the transformer if the current ratio of CT's on H.V. side is 200/5A?	10	1	C404.2	Analyse
3)	Depict and explain the percentage differential protection method of star/delta power Transformer?	10	2	C404.2	Understand
4)	A 3 phase, 2 pole 11kV alternator has neutral earthed through a resistance of 6 ohm. Themachine has current balance protection which operates upon out of balance current exceed 10% of full load. Determine the % of winding protected and unprotected against earth fault?	10	2	C404.2	Analyze&Apply
5)	Analyze stator inter- turn fault protection method for alternator?	10	2	C404.2	Analyse

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B.Tech – III-II Semester (R15) MID- I Examinations
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SET 4

Sub: Power System Protection — Date:03-03-2018
Time: 1½ Hrs. — Max Marks: 30M

Question 1 is compulsory. Answer one from 2 or 3 and one from 4 or 5.

		Marks	Unit	CO	Cognitive Level
1.i)	Define PSM and TSM?	2	1	C404.1	Remember
1.ii)	Describe the equation for directional relay from universal torque equation?	2	1	C404.2	Apply
1.iii)	List out the various faults that may occur in transformer?	2	2	C404.2	Remember
1.iv)	What is the role of protection in power system?	2	1	C404.1	Analyse
1.v)	State and explain the pick-up current of relay?	2	1	C404.1	Analyse
2)	A 3 phase, 2 pole 11kV alternator has neutral earthed through a resistance of 6 ohm. Themachine has current balance protection which operates upon out of balance current exceed 10% of full load. Determine the % of winding protected and unprotected against earth fault?	10	1	C404.2	Analyze&Apply
3)	What are the abnormal conditions and their remedies involved in protecting alternator?	10	2	C404.2	Analyse
4)	With the help of connecting diagram explain the percentage differential protection scheme for transformer protection?	10	2	C404.2	Understand
5)	For a 50 MVA, 132kV/6.6kV power transformer with Δ – Y (Delta – Star) connections, obtain the CT's ratios on H.V. side of the transformer if the current ratio of CT's on L.V. side is 180:5A?	10	2	C404.2	Analyze&Apply

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B.Tech – III-II Semester (R13) MID- I Examinations
Branch: EEE

SET 4

Sub: Power System Protection
Date:07-03-2017
Time: 1½ Hrs.
Max Marks: 30M

Question 1 is compulsory. Answer one from 2 or 3 and one from 4 or 5.

		Marks	Unit	CO	Cognitive Level
1.i)	Define PSM and TSM?	2	1	C404.1	Remember
1.ii)	Describe the equation for directional relay from universal torque equation?	2	1	C404.2	Apply
1.iii)	List out the various faults that may occur in transformer?	2	2	C404.2	Remember
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3)	What are the abnormal conditions and their remedies involved in protecting alternator?	10	2	C404.2	Analyse
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