

Internal Assessment Test – 1

Sub: Computer Aided Electrical Drawing (Professional Elective)					Code: 15EE651	
Date: 06/03/2019	Duration: 90 mins	Max Marks: 50	Sem: 6	Section: A & B	Batch: 1	
Answer ANY One question. Explain your notations explicitly and clearly. Sketch figures wherever necessary. Use AutoCAD Software for drawing. Good luck!						
					Marks	
					OBE	
					CO	RBT
Q1. Draw the armature winding of a dc machine with the following data: no. of poles = 4; no. of slots = 16; double layer, simplex progressive lap. Show the position of the brushes, direction of the rotation of the machine when working as a generator, and the equalizer rings. Also, draw the sequence diagram.					[50]	CO1 L3
OR						
Q2. Draw the armature winding of a dc machine with the following data: no. of poles = 4; no. of slots = 14; double layer, simplex progressive lap. Show the position of the brushes, direction of the rotation of the machine when working as a generator, and the equalizer rings. Also, draw the sequence diagram.					[50]	CO1 L3

Internal Assessment Test – 1

Sub: Computer Aided Electrical Drawing (Professional Elective)					Code: 15EE651	
Date: 06/03/2019	Duration: 90 mins	Max Marks: 50	Sem: 6	Section: A & B	Batch: 2	
Answer ANY One question. Explain your notations explicitly and clearly. Sketch figures wherever necessary. Use AutoCAD Software for drawing. Good luck!						
					Marks	
					OBE	
					CO	RBT
Q1. Draw the armature winding of a dc machine with the following data: no. of poles = 4; no. of conductors = 24; double layer, simplex progressive lap. Show the position of the brushes, direction of the rotation of the machine when working as a generator, and the equalizer rings. Also, draw the sequence diagram.					[50]	CO1 L3
OR						
Q2. Draw the armature winding of a dc machine with the following data: no. of poles = 4; no. of slots = 18; double layer, simplex progressive lap. Show the position of the brushes, direction of the rotation of the machine when working as a generator, and the equalizer rings. Also, draw the sequence diagram.					[50]	CO1 L3

Internal Assessment Test – 1

Sub: Computer Aided Electrical Drawing (Professional Elective)					Code: 15EE651	
Date: 06/03/2019	Duration: 90 mins	Max Marks: 50	Sem: 6	Section: A & B	Batch: 3	
Answer ANY One question. Explain your notations explicitly and clearly. Sketch figures wherever necessary. Use AutoCAD Software for drawing. Good luck!						
					Marks	
					OBE	
					CO	RBT
Q1. Draw the armature winding of a dc machine with the following data: no. of poles = 4; no. of slots = 12; double layer, simplex progressive lap. Show the position of the brushes, direction of the rotation of the machine when working as a generator, and the equalizer rings. Also, draw the sequence diagram.					[50]	CO1 L3
OR						
Q2. Draw the armature winding of a dc machine with the following data: no. of poles = 6; no. of slots = 18; double layer, simplex progressive lap. Show the position of the brushes, direction of the rotation of the machine when working as a generator, and the equalizer rings. Also, draw the sequence diagram.					[50]	CO1 L3

Scheme of Evaluation
Internal Assessment Test 1 – March 2019

Sub:	CAED						Code:	15EE651	
Date:	06/03/2019	Duration:	90 min	Max Marks:	50	Sem:	6 th	Branch:	EEE (Batch 1)

Note: Answer Any ONE Question

Question #	Description	Marks Distribution	Max Marks
1	<p>Draw the armature winding of a dc machine with the following data: no. of poles = 4; no. of slots = 16; double layer, simplex progressive lap. Show the position of the brushes, direction of the rotation of the machine when working as a generator, and the equalizer rings. Also, draw the sequence diagram.</p> <ol style="list-style-type: none"> 1. Calculation of Pole Pitch (Y_P) 2. Calculation of Back Pitch (Y_B) 3. Calculation of Front Pitch (Y_F) 4. Winding Table 5. Pole Placement <ol style="list-style-type: none"> a. Calculation of Length of Pole b. Calculation of Width of Pole 6. Drawing in AutoCAD 7. Sequence Diagram 8. Equalizer Rings 	<ol style="list-style-type: none"> 1. 4M 2. 4M 3. 4M 4. 4M 5. <ol style="list-style-type: none"> a. 2M b. 2M 6. 22M 7. 4M 8. 4M 	50 M
2	<p>Draw the armature winding of a dc machine with the following data: no. of poles = 4; no. of slots = 14; double layer, simplex progressive lap. Show the position of the brushes, direction of the rotation of the machine when working as a generator, and the equalizer rings. Also, draw the sequence diagram.</p> <ol style="list-style-type: none"> 1. Calculation of Pole Pitch (Y_P) 2. Calculation of Back Pitch (Y_B) 3. Calculation of Front Pitch (Y_F) 4. Winding Table 5. Pole Placement <ol style="list-style-type: none"> a. Calculation of Length of Pole b. Calculation of Width of Pole 6. Drawing in AutoCAD 7. Sequence Diagram 8. Equalizer Rings 	<ol style="list-style-type: none"> 1. 4M 2. 4M 3. 4M 4. 4M 5. <ol style="list-style-type: none"> a. 2M b. 2M 6. 22M 7. 4M 8. 4M 	50 M

Scheme of Evaluation
Internal Assessment Test 1 – March 2019

Sub:	CAED						Code:	15EE651	
Date:	06/03/2019	Duration:	90 min	Max Marks:	50	Sem:	6 th	Branch:	EEE (Batch 2)

Note: Answer Any ONE Question

Question #	Description	Marks Distribution	Max Marks
1	<p>Draw the armature winding of a dc machine with the following data: no. of poles = 4; no. of conductors = 24; double layer, simplex progressive lap. Show the position of the brushes, direction of the rotation of the machine when working as a generator, and the equalizer rings. Also, draw the sequence diagram.</p> <ol style="list-style-type: none"> 1. Calculation of Pole Pitch (Y_P) 2. Calculation of Back Pitch (Y_B) 3. Calculation of Front Pitch (Y_F) 4. Winding Table 5. Pole Placement <ol style="list-style-type: none"> a. Calculation of Length of Pole b. Calculation of Width of Pole 6. Drawing in AutoCAD 7. Sequence Diagram 8. Equalizer Rings 	<ol style="list-style-type: none"> 1. 4M 2. 4M 3. 4M 4. 4M 5. <ol style="list-style-type: none"> a. 2M b. 2M 6. 22M 7. 4M 8. 4M 	50 M
2	<p>Draw the armature winding of a dc machine with the following data: no. of poles = 4; no. of slots = 18; double layer, simplex progressive lap. Show the position of the brushes, direction of the rotation of the machine when working as a generator, and the equalizer rings. Also, draw the sequence diagram.</p> <ol style="list-style-type: none"> 1. Calculation of Pole Pitch (Y_P) 2. Calculation of Back Pitch (Y_B) 3. Calculation of Front Pitch (Y_F) 4. Winding Table 5. Pole Placement <ol style="list-style-type: none"> a. Calculation of Length of Pole b. Calculation of Width of Pole 6. Drawing in AutoCAD 7. Sequence Diagram 8. Equalizer Rings 	<ol style="list-style-type: none"> 1. 4M 2. 4M 3. 4M 4. 4M 5. <ol style="list-style-type: none"> a. 2M b. 2M 6. 22M 7. 4M 8. 4M 	50 M

Scheme of Evaluation
Internal Assessment Test 1 – March 2019

Sub:	CAED						Code:	15EE651	
Date:	06/03/2019	Duration:	90 min	Max Marks:	50	Sem:	6 th	Branch:	EEE (Batch 3)

Note: Answer Any ONE Question

Question #	Description	Marks Distribution	Max Marks
1	<p>Draw the armature winding of a dc machine with the following data: no. of poles = 4; no. of slots = 12; double layer, simplex progressive lap. Show the position of the brushes, direction of the rotation of the machine when working as a generator, and the equalizer rings. Also, draw the sequence diagram.</p> <ol style="list-style-type: none"> 1. Calculation of Pole Pitch (Y_P) 2. Calculation of Back Pitch (Y_B) 3. Calculation of Front Pitch (Y_F) 4. Winding Table 5. Pole Placement <ol style="list-style-type: none"> a. Calculation of Length of Pole b. Calculation of Width of Pole 6. Drawing in AutoCAD 7. Sequence Diagram 8. Equalizer Rings 	<ol style="list-style-type: none"> 1. 4M 2. 4M 3. 4M 4. 4M 5. <ol style="list-style-type: none"> a. 2M b. 2M 6. 22M 7. 4M 8. 4M 	50 M
2	<p>Draw the armature winding of a dc machine with the following data: no. of poles = 6; no. of slots = 18; double layer, simplex progressive lap. Show the position of the brushes, direction of the rotation of the machine when working as a generator, and the equalizer rings. Also, draw the sequence diagram.</p> <ol style="list-style-type: none"> 1. Calculation of Pole Pitch (Y_P) 2. Calculation of Back Pitch (Y_B) 3. Calculation of Front Pitch (Y_F) 4. Winding Table 5. Pole Placement <ol style="list-style-type: none"> a. Calculation of Length of Pole b. Calculation of Width of Pole 6. Drawing in AutoCAD 7. Sequence Diagram 8. Equalizer Rings 	<ol style="list-style-type: none"> 1. 4M 2. 4M 3. 4M 4. 4M 5. <ol style="list-style-type: none"> a. 2M b. 2M 6. 22M 7. 4M 8. 4M 	50 M

Case assignment - 1

Name:- Manjunath, N

USN :- 1CR16EE043

Faculty:- Prof. Kashif Ahmed

Date of Submission:-

Due date:-

Q1. Draw the armature wdg of DC machine with no of poles = 4, no of slots = 16.
 ~ double layer, Simplex progressive lap, show position of the brushes, direction of rotation and of the machine when working as a generator & 1 ϕ equalizer rings. Also draw the sequence diagram.

$\rightarrow P=4, S=16, SPL, DL$

$$Z = S \times n$$

$$= 16 \times 2$$

$$= 32$$

$$Y_p = S/p = \frac{16}{4} = 4$$

$$Y_p = Z/p = \frac{32}{4} = 8$$

$$Y_B = Y_p \pm k \quad [k = +1]$$

$$= 8 + 1$$

$$= 9$$

$$Y_f = Y_B \pm 2x$$

$$= 9 - 2 \times 1$$

$$= 7$$

$$\tau = Y_p \times d$$

$$= 8 \times 10 = 80 \text{ mm}$$

$$\text{length of pole} = 0.7 \tau = 56 \text{ mm}$$

$$0.3 \tau = 24 \text{ mm}$$

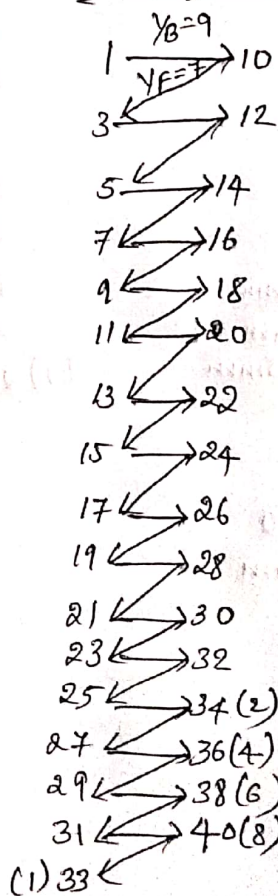
$$0.15 \tau = 12 \text{ mm}$$

$$\text{width of pole} = 0.75 \times l$$

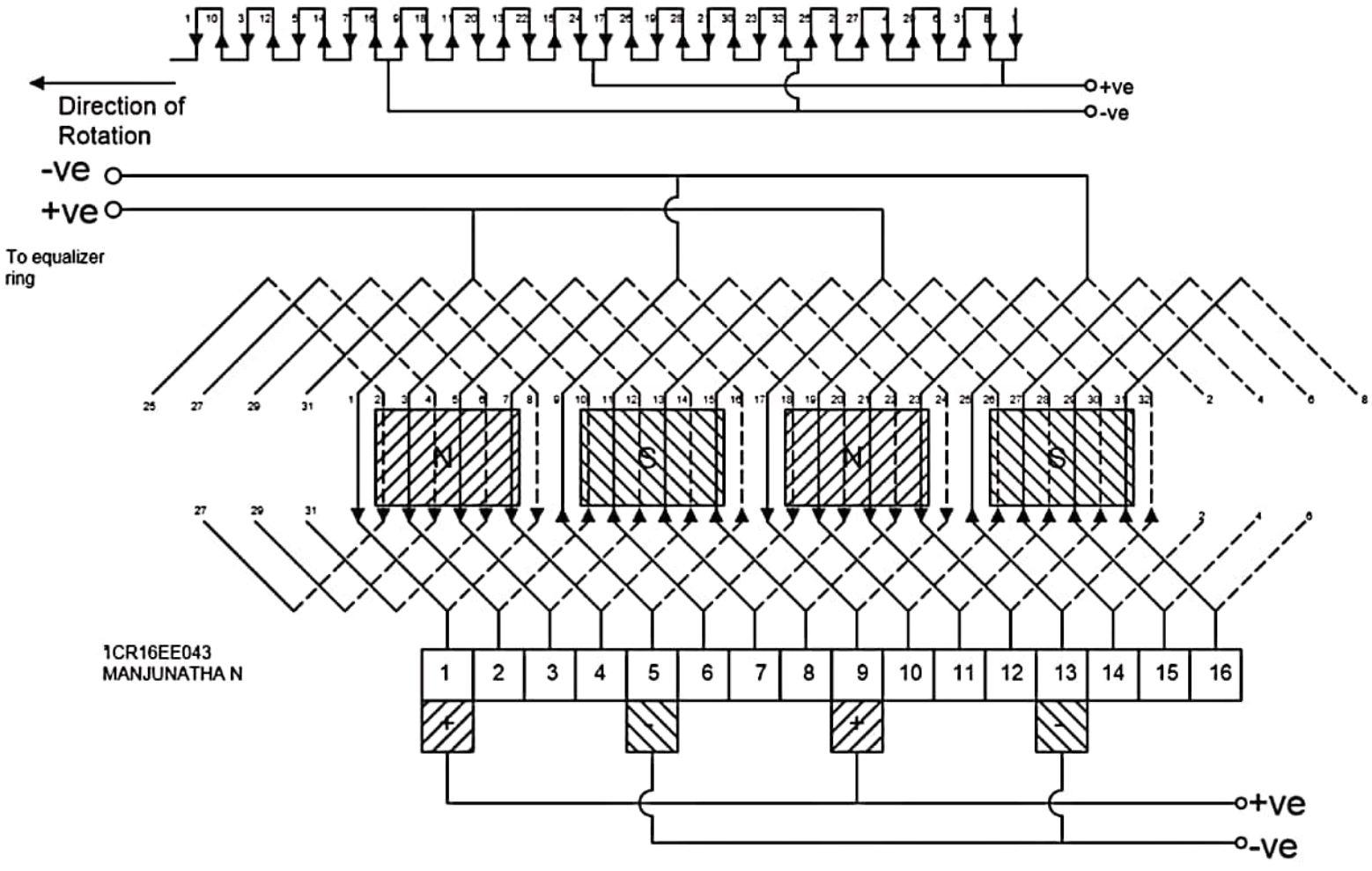
$$= 0.75 \times 50$$

$$= 37.5 \text{ mm}$$

Winding table



Sequence diagram



Q2. Draw the armature winding of a dc machine with the following data: no of poles = 4, no of slots = 14, DL, SPL, Show the position of the brushes, DOR, of the machine, when working as a generator, & the equalizer rings, also draw the sequence diagram.

→ $P=4$, $S=14$, SPL, DL

$$Z = S \times n$$

$$= 14 \times 2$$

$$= 28$$

$$Y_p = S/p = 14/4 = 3.5$$

$$= \frac{Z}{p} = \frac{28}{4} = 7$$

$$Y_B = Y_p \pm k$$

$$= 7 + 0$$

$$= 7$$

$$Y_F = Y_B \pm 2x$$

$$= 7 - 2 \times 1$$

$$= 5$$

$$Z = Y_p \times d$$

$$= 7 \times 10$$

$$= 70 \text{ mm}$$

$$\text{length of pole} = 0.7C = 49 \text{ mm}$$

$$0.3T = 21 \text{ mm}$$

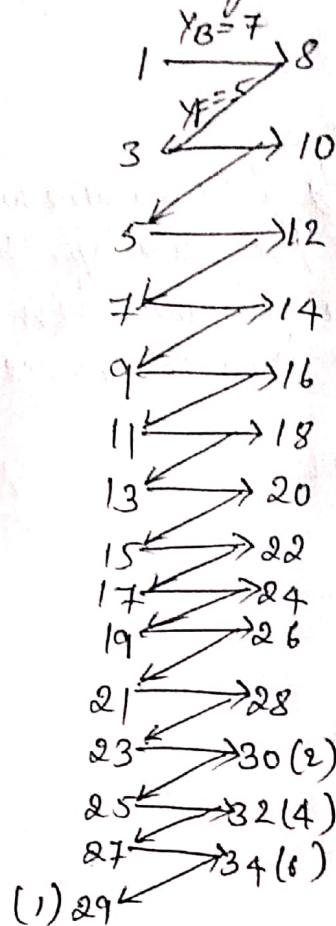
$$0.15T = 10.5 \text{ mm}$$

$$\text{width of pole} = 0.75 \times l$$

$$= 0.75 \times 50$$

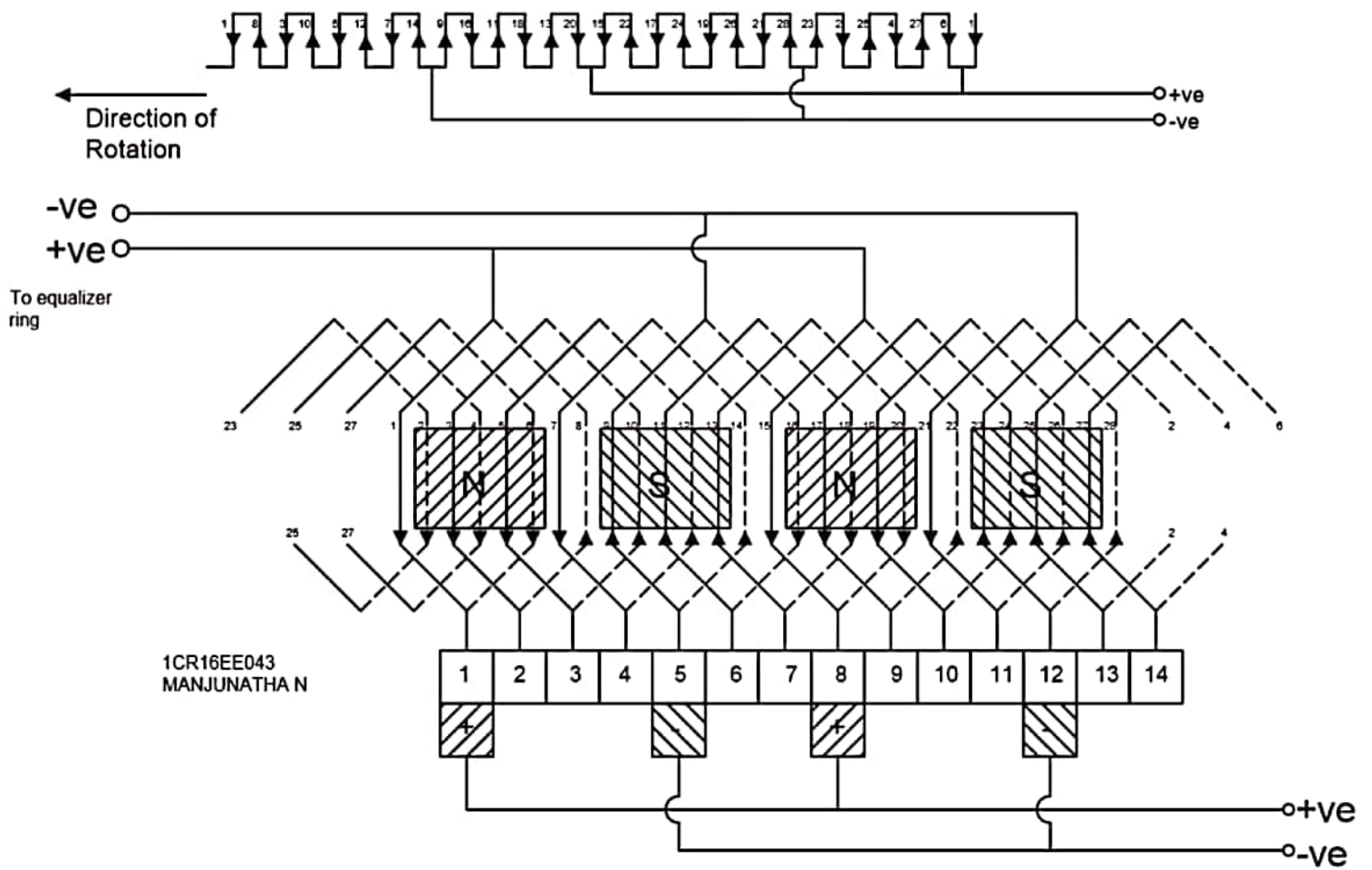
$$= 37.5 \text{ mm}$$

Winding table



Q2

Sequence diagram



Q3. Draw the armature winding of a dc machine with the following data no of poles = 4, no of conductors = 24, double layer SPL, show the position of the brushes, DOR, when working as a generator, & equalizer rings, Also draw the sequence diagram.

$P=4, Z=24, SPL, DL$

$Z = S \times n$

$24 = S \times 2$

$S = 12$

$Y_p = S/p = 12/4 = 3$

$Y_p = Z/p = 24/4 = 6$

$Y_B = Y_p \pm k [k=+1]$

$= 6+1$

$= 7$

$Y_F = Y_B \pm 2x$

$= 7 - 2 \times 1$

$= 5$

[x=1 simplex]

[- → prog]

$\tau = Y_p \times d$

$= 7 \times 10$

$= 70 \text{ mm}$

length of pole = $0.7\tau = 49 \text{ mm}$

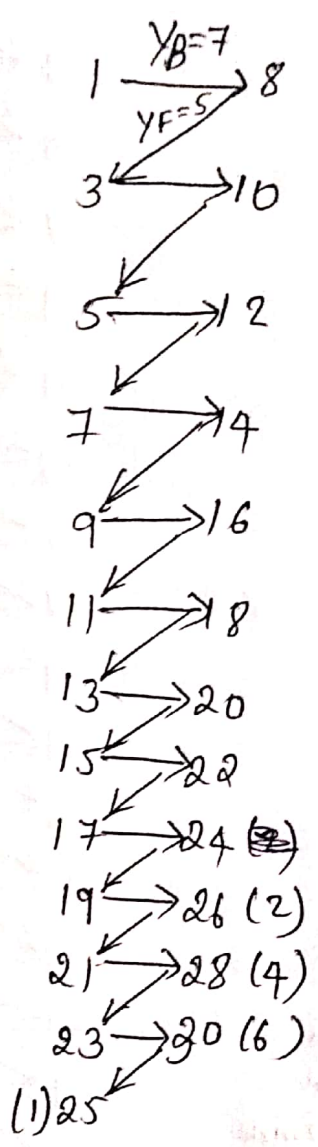
$0.3\tau = 21 \text{ mm}$

$0.15\tau = 10.5 \text{ mm}$

width of poles = $0.75 \times \tau$

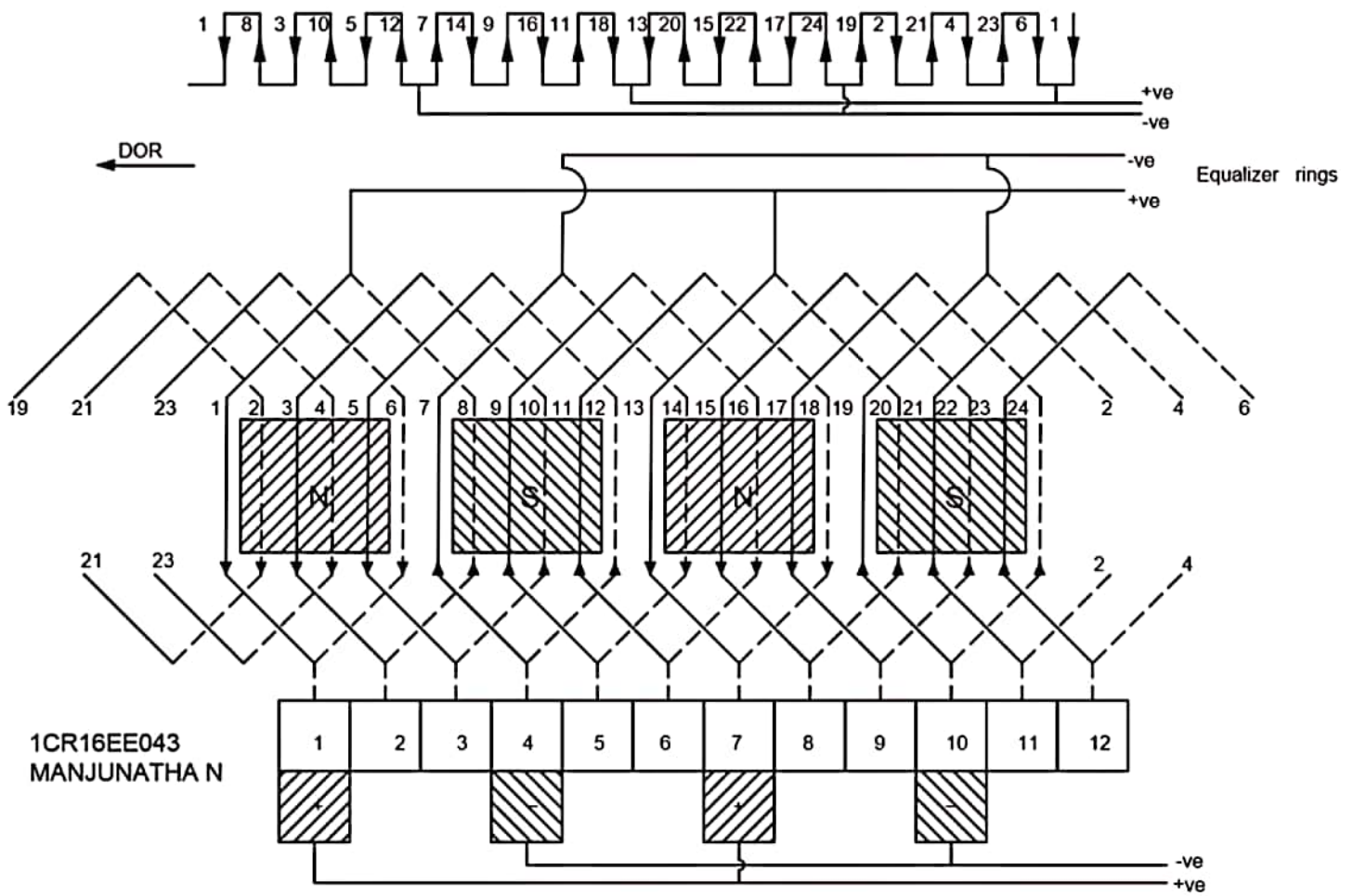
$= 0.75 \times 70$

$= 52.5 \text{ mm}$



Q3

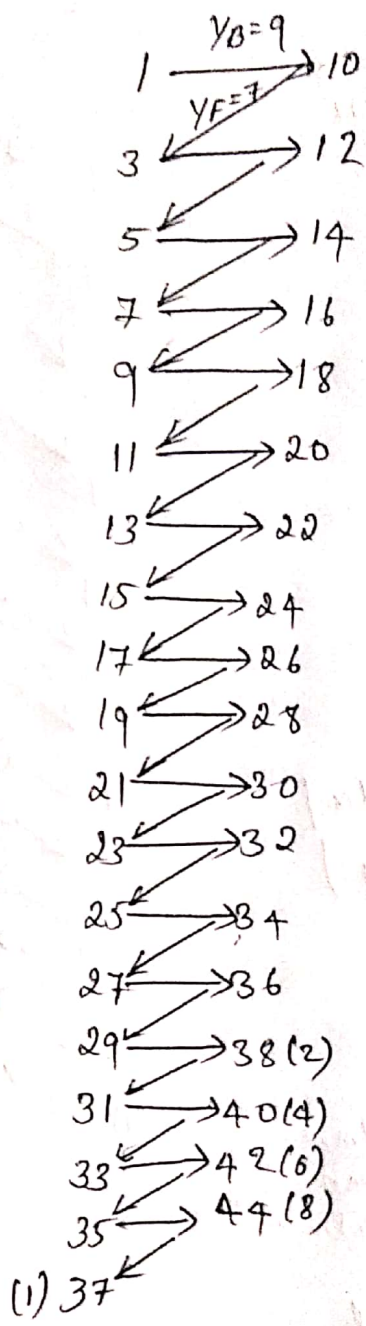
Sequence diagram



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MANJUNATHA N

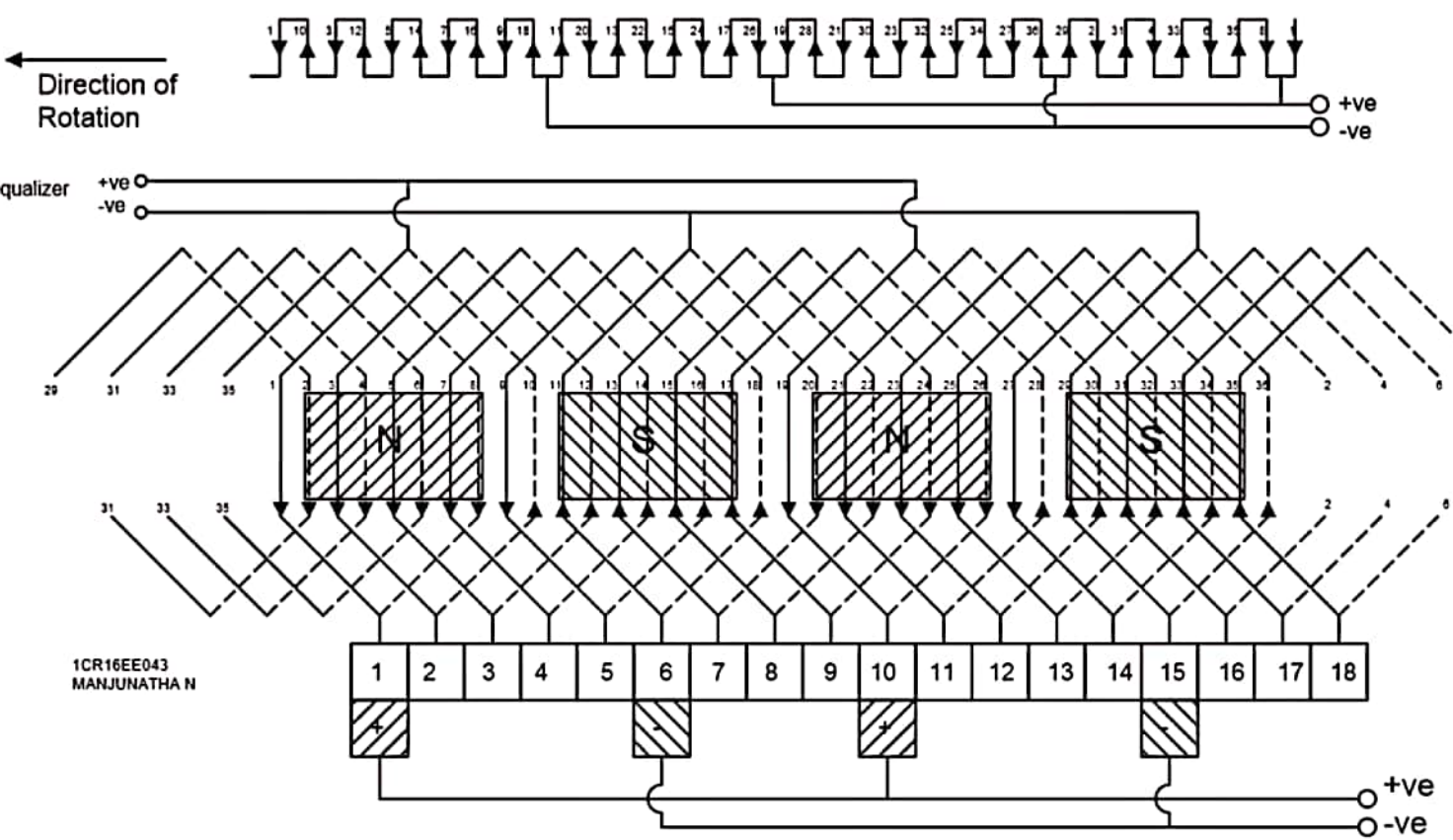
Q4. Draw the armature winding of dc machine with following data, $p=4$, no of slots = 18, DL, SPL, show the position of the brushes, direction of rotation, working as a generator, the equalizer rings, also draw the sequence diagram.

$S=18, P=4, SPL, DL$
 $Z = S \times n$
 $= 18 \times 2$
 $= 36$
 $Y_p = S/p = 18/4 = 4.5$
 $Y_p = Z/p = 36/4 = 9$
 $Y_B = Y_p \pm k$
 $= 9 + 0$
 $= 9$
 $Y_F = Y_B \pm 2x$
 $= 9 - 2 \times 1$
 $= 7$
 $\tau = Y_p \times d$
 $= 9 \times 10$
 $= 90 \text{ mm}$
 length of pole = $0.7\tau = 63 \text{ mm}$
 $0.3\tau = 27 \text{ mm}$
 $0.15\tau = 13.5 \text{ mm}$
 width of pole = $0.75 \times d$
 $= 0.75 \times 50$
 $= 37.5 \text{ mm}$



Q4

Sequence diagram



Q5. Draw the armature of a dc machine with the following data $p=4$, $s=12$
 DL, SPL show the position of brushes, DOR when working as a generator, equalizer rings. Also draw the sequence diagram.

→ $P=4$, $S=12$, SPL, DL

$$Z = S \times n$$

$$= 12 \times 2$$

$$= 24$$

$$Y_p = \frac{Z}{p} = 3$$

$$Y_p = \frac{Z}{p} = \frac{24}{4} = 6$$

$$Y_B = Y_p \pm k$$

$$= 6 \pm 1$$

$$= 7$$

$$Y_F = Y_B \pm 2x$$

$$= 7 - 2 \times 1$$

$$= 5$$

$$C = Y_p \times d$$

$$= 6 \times 10$$

$$= 60 \text{ mm}$$

$$0.7C = 42 \text{ mm}$$

$$0.3C = 18 \text{ mm}$$

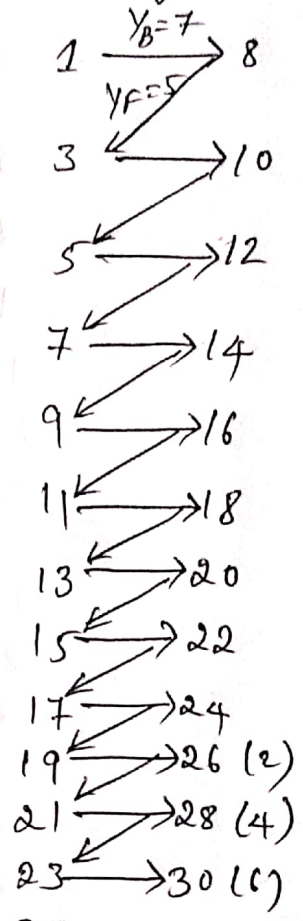
$$0.15C = 9 \text{ mm}$$

$$\text{width of pole} = 0.75 \times 1$$

$$= 0.75 \times 50$$

$$= 37.5 \text{ mm}$$

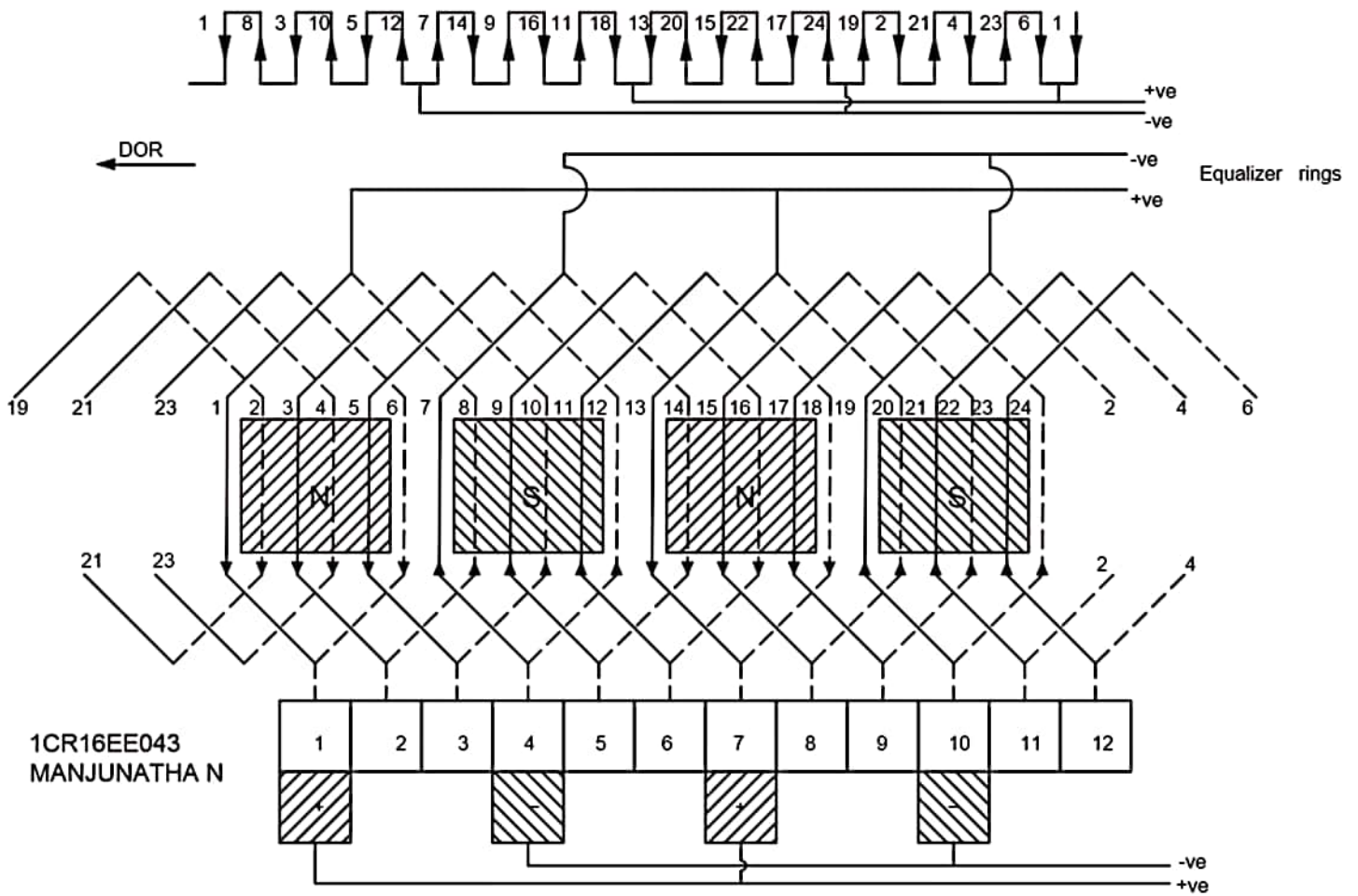
Winding table



(1) 25

Q5

Sequence diagram



Q6. Draw the armature of a dc machine with the following data no of poles = 6, no of slots = 18, DL, SPL show the position of brushes DOR when working as a generator, and the equalizer rings. Also draw the sequence diagram.

→ $P=6, S=18$ SPL, DL

$$Z = S \times 2$$

$$= 18 \times 2$$

$$= 36$$

$$Y_p = \frac{S}{P} = \frac{18}{6} = 3$$

$$Y_p = \frac{Z}{P} = \frac{36}{6} = 6$$

$$Y_B = Y_p \pm k$$

$$= 6 + 1$$

$$= 7$$

$$Y_F = Y_B - 2\alpha$$

$$= 7 - 2 \times 1$$

$$= 5$$

$$T = Y_p \times d$$

$$= 6 \times 10$$

$$= 60 \text{ mm}$$

$$0.7T = 42 \text{ mm}$$

$$0.3T = 18 \text{ mm}$$

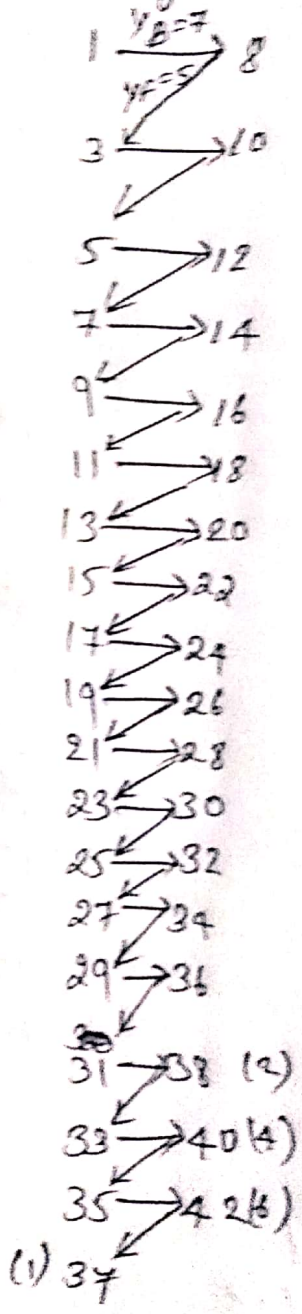
$$0.15T = 9 \text{ mm}$$

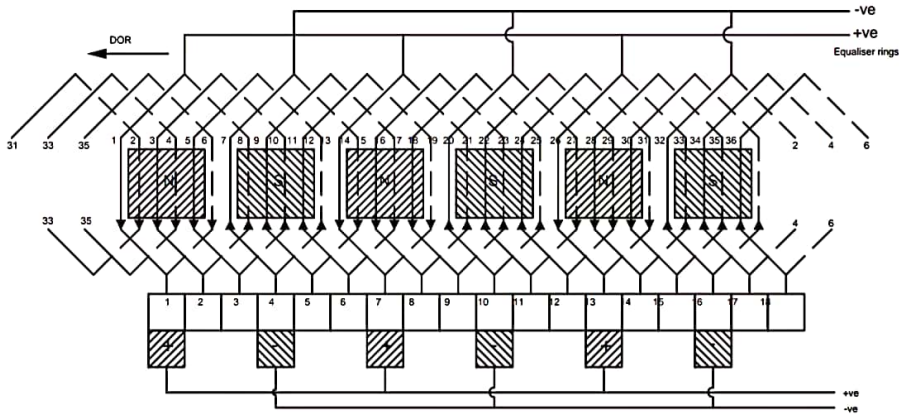
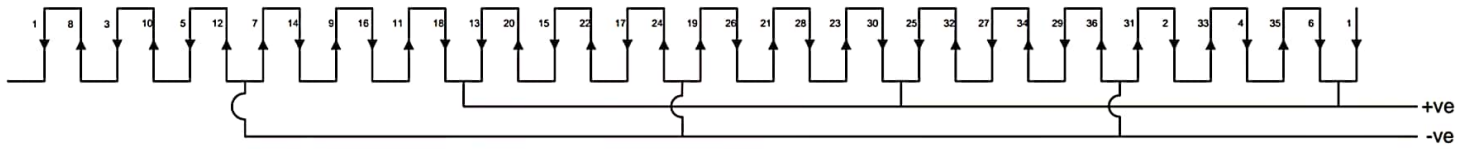
$$\text{width of pole} = 0.75 \times l$$

$$= 0.75 \times 50$$

$$= 37.5 \text{ mm}$$

Winding table





Manjunatha N
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