

CLASS TEST - II

विद्युत विद्युत

विषय - Electrical Design & Drawing  
Code - EE 304

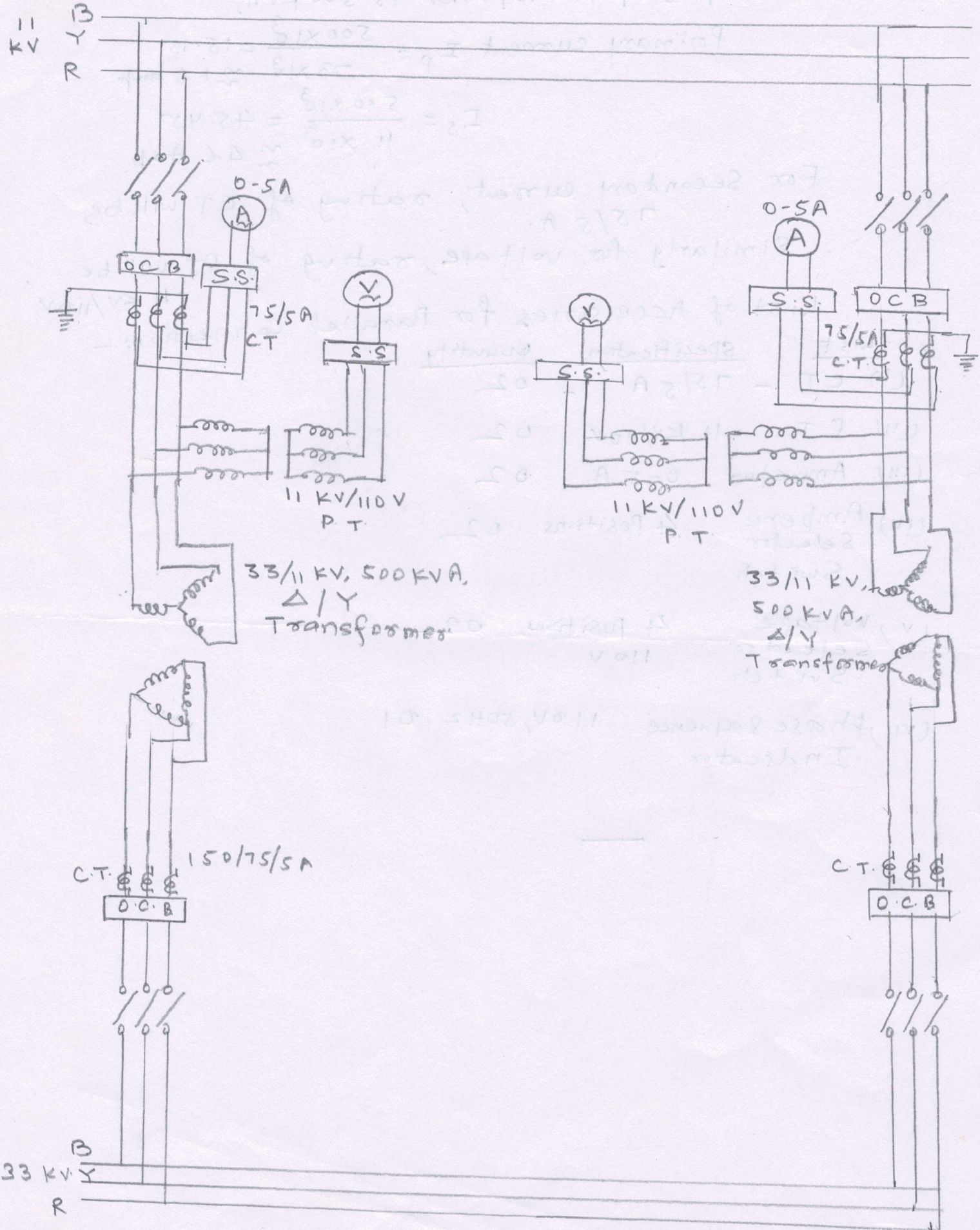
Answer any one question. Students ~~be~~ having odd Roll no. have to solve question no. 1 and Students having even Roll no. have to solve question no. 2.

1Q. - Two Transformers of rating 33/11 KV, 500 kVA,  $\Delta/Y$  are connected in parallel. Draw the panel wiring diagram. Also Prepare the list of instruments used with specifications (15)

2. Q. → Draw the Panel wiring diagram of Parallel operation of two same alternators. Their description is 415 V, 3  $\phi$ , 50 Hz, 5 kVA. Also write the specification of the instruments used. (15)



Q.1



Since Rating of Transformer is 500 kVA,

$$\text{Primary current } I_p = \frac{500 \times 10^3}{23 \times 10^3} = 15.15 \approx 16 \text{ amp}$$

$$I_s = \frac{500 \times 10^3}{11 \times 10^3} = 45.45 \approx 46 \text{ Amp}$$

For Secondary current, rating of CT will be, 75/5 A.

Similarly for voltage, rating of PT will be 11 KV/110V

List of Accessories for Parallel Connections -

<u>List</u>	<u>Specifications</u>	<u>Quantity</u>
(i) CT	75/5 A	02
(ii) PT	11 KV/110V	02
(iii) Ammeter	0-5 A	02
(iv) Ampere Selector Switch	4 Positions	02
(v) Voltage Selector Switch	4 Positions, 110V	02
(vi) Phase Sequence Indicator	110V, 50Hz	01

---

Q. 2

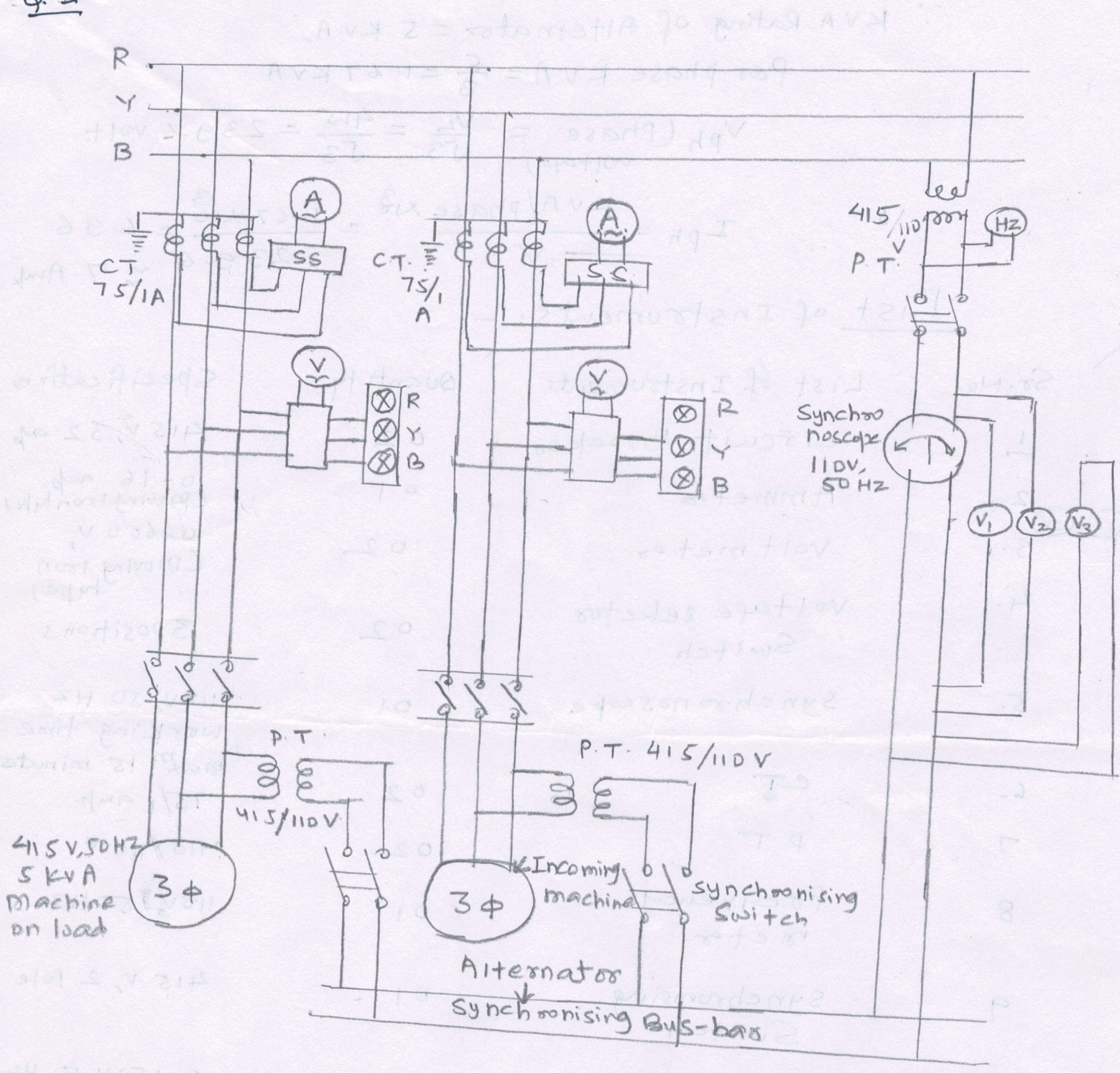


Fig. → 415 V, 5 kVA, 50 Hz के दो 3 φ Alternators का Parallel operation.

∴ KVA Rating of Alternator = 5 KVA,

$$\text{Per phase KVA} = \frac{5}{3} = 1.67 \text{ KVA}$$

$$V_{ph} \text{ (Phase voltage)} = \frac{V_L}{\sqrt{3}} = \frac{415}{\sqrt{3}} = 239.6 \text{ volt}$$

$$I_{ph} = \frac{\text{KVA/phase} \times 10^3}{V} = \frac{1.67 \times 10^3}{239.6} = 6.96 \approx 7 \text{ Amp}$$

### List of Instruments: -

Sr. No.	List of Instruments	Quantity	Specifications
1	circuit Breaker	02	415 V, 32 amp
2	Ammeter	01	0-16 amp. (Moving iron type)
3.	voltmeter	02	0-600 V, (Moving iron type)
4.	voltage selector Switch	02	3 positions
5.	synchroscope	01	110V, 50 Hz, working time max. 15 minutes
6.	CT	02	75/1 amp.
7	PT	02	415/110 V
8	frequency meter	01	110V, 50 Hz
9	synchronising Switch	01	415 V, 2 pole
10	voltmeter	03	0-150 V, 50 Hz
11.	Indicating lamp	06	15 W, 230 V, (2R, 2Y & 2B)