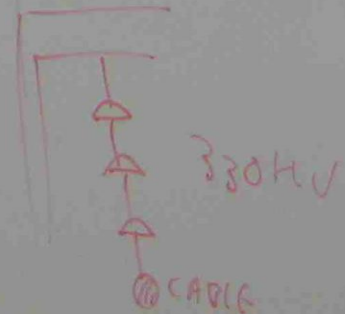


POWER & MACHINE

- (1) A TYPICAL GENERATOR VOLTAGE ON NSW POWER SYSTEM IS 23KV
- (2) ELECTRICITY IS SUPPLIED TO NSW HOMES THROUGH DISTRIBUTORS TRANSFORMER.
L.V SIDE IS 415V, H.V SIDE IS 11KV.
- (3) THE BASE LOAD OF THE ANNUAL DEMAND CURVE OF A POWER SYSTEM IS AN INDICATION OF MAXIMUM POWER THAT MUST BE PRODUCED.
- (4) WHAT ARE THE FACTORS THAT INFLUENCE THE SHAPE OF DAILY DEMAND CURVE?
WEATHER, TIME OF THE DAY, DAY OF THE WEEK, SEASON OF THE YEAR
- (5) HOW MANY DISC SUPPORTING CONDUCTORS ARE REQUIRED TO SUPPORT 330KV LINE WIRE?

$$\frac{330}{11} \text{KV} - 1 \text{ INSULATION} \approx 18$$



⑥ THE SAG OF A TRANSMISSION LINE IS DEFINED AS

$$SAG = \frac{wl^2}{8T}$$

w = WEIGHT of CONDUCTOR

l = LINE SPAN

T = TENSION

⑦ A TRANSFORMER HAS NO LOAD LOSS 2 kW AND FULL LOAD WINDING COPPER LOSS 4 kW. WHEN THE TRANSFORMER IS DELIVERING $\frac{1}{2}$ LOAD CURRENT, ITS TOTAL LOSSES ARE

$$W_I = 2 \text{ kW}, \quad W_C = L^2 \times W_{CFL}$$

$$W_C \frac{1}{2} L = \left(\frac{1}{2}\right)^2 \times 4 = 1 \text{ kW}$$

$$\text{TOTAL } \frac{1}{2} \text{ LOAD LOSS} = 2 + 1 = 3 \text{ kW}$$

W_{CFL} = FULL LOAD
COPPER
LOSS

W_I = IRON
LOSS

⑧ TO PROVIDE NO LOAD TERMINAL VOLTAGE BE EQUAL TO FULL LOAD TERMINAL VOLTAGE, WHAT KIND OF CONNECTION

TO BE APPLIED FOR DC GENERATOR?



DC COMPOUND
GENERATOR

LEVEL COMPOUND DC GENERATOR

9 THE ADVANTAGE OF A SYNCHRONOUS MOTOR OVER AN INDUCTION MOTOR IS

(a) SIMPLER CONSTRUCTION

(b) HIGHER STARTING TORQUE

✓ (c) UNITY P.F OPERATION POSSIBLE

10 WHICH MOTOR HAS THE HIGHEST STARTING TORQUE

(A) SQUIRREL CAGE INDUCTION MOTOR

(B) WOUND ROTOR MOTOR

(C) SYNCHRONOUS MOTOR

✓ (D) DC SERIES MOTOR

(E) HYSTERESIS MOTOR



11 WHAT ARE THE FACTORS ON WHICH THE FUSING CURRENT DEPENDS ON?

CONDUCTOR CROSS SECTIONAL AREA

THE MATERIAL OF CONDUCTOR

RESISTANCE & LENGTH OF CONDUCTOR

12 WHY THE CURRENT LIMITING REACTOR IS USED FOR?

TO PREVENT EXCESSIVE FAULT CURRENT THROUGH AN EQUIPMENT

13 IF YOU ENTERED A 132/33KV SWITCHYARD, HOW CLOSE WOULD YOU APPROACH A BARE (UNCOVERED) 33KV CONNECTOR WITHOUT ENDANGERING YOUR LIFE?

1 m

⑭ THE COLOR OF THE EARTHING CONDUCTOR OF A FLEXIBLE CABLE IS

YELLOW / GREEN

⑮ IN ORDER TO PROVIDE THE ELECTRICAL ENERGY IN A USABLE FORM, THE POWER SYSTEM HAS TO MAINTAIN A STABLE FREQUENCY WHICH MUST NOT VARY BY MORE THAN

0.1 Hz

⑯ IF A 6 POLE ALTERNATOR IS PRODUCING ELECTRICITY AT A FREQUENCY OF 50 Hz, AT WHAT SPEED IS THE ROTOR SPINNING?

$$N = \frac{120f}{p}$$

$$= \frac{120 \times 50}{6}$$

N = SPEED

p = NO. OF POLES

f = FREQUENCY

(17) NAME 4 COMMERCIAL GENERATING METHODS?

THERMAL (COAL FIRED)

HYDRO
DIESEL / OIL

GAS TURBINE

(18) WHY H.V IS USED FOR TRANSMISSION LINES?
REDUCING CURRENT AND VOLTAGE DROP
OVER LONG DISTANCE.

(19) UNDER AUSTRALIAN STANDARD, A VOLTAGE OF 32V AC IS
DEFINED AS (EXTRA LOW VOLTAGE)

(20) WHICH TEST IS APPLIED FOR INSULATING CAPABILITY OF AN
ELECTRICAL COMPONENT?

BIL - BASIC IMPULSE INSULATION LEVEL.

(21) WHY LAMINATED CORES ARE USED FOR TRANSFORMER?
TO REDUCE EDDY CURRENT LOSS

