Chapter 13

SAMPLE QUESTIONS - AC ELECTRICS

1. AC voltage :-

(a) is a constant amplitude.
(b) varies in amplitude and polarity.
(c) varies in amplitude only.

2. A 115VAC 400 HZ 3∅ supply has:

(a) a capacity of 400 000 watts.
(b) an impedance of 400 ohms.
(c) a frequency of 400 cycles per second.

3. The frequency of aircraft constant frequency AC systems is normally maintained between:

(a) 380 and 420 HZ.
(b) 350 and 450 HZ.
(c) 395 and 405 HZ.

4. The output voltage of an AC generator is usually controlled by :-

(a) controlling the strength of the magnetic field.
(b) changing the number of windings on the armature.
(c) changing the number of windings in the field coils.
(d) controlling the RPM of the armature.

5. The output frequency of an AC generator is governed by :-

(a) controlling the strength of the magnetic field.
(b) changing the number of windings on the armature.
(c) changing the number of windings in the field coils.
(d) controlling the RPM of the armature.

6. The armature of a brushless generator contains :-

(a) the output windings.
(b) the rotating field and diodes.
(c) either sliprings or a commutator.

7. The line voltage of a three-phase star-connected AC. is :-

(a) less than phase voltage.
(b) greater than phase voltage.
(c) equal to phase voltage.

8. Single phase 115 VAC 400 HZ equipment may be used with a three phase 115 VAC 400 HZ supply providing it is connected:-

(a) to the line voltage output terminal of a star wound generator.
(b) between any phase and earth.
(c) to all three output phases of a delta wound generator.

9. AC generator systems can be connected in parallel for high capacity supply providing :-

(a) voltage, frequency and phases are matched.
(b) frequency and phase only are matched.
(c) voltage and phase only are matched.

10. In an AC circuit, inductive reactance, capacitive reactance and resistance combine by form.

(a) impedance.
(b) conductive reluctance.
(c) inductive capacitance.

11. The opposing potential in AC circuits (and changing DC circuits) is known as :-

(a) PD.
(b) Forward EMF.
(c) Back EMF.

12. The field excitation current for AC. generators is :-

(a) DC. and may be varied to control output voltage.
(b) AC. and therefore cannot be varied to control output voltage.
(c) AC. and may be varied to control output voltage.

13. Frequency wild alternators :-

(a) are often connected in parallel.
(b) can be connected in either series or parallel.
(c) are never paralleled.

14. The normal frequency range of a frequency wild generator (ACW) is between:

(a) 0 and 600 HZ.
(b) 200 and 700 HZ.
(c) 350 and 500 HZ.

15. An AC generator driven by a constant speed drive unit :-

(a) does not need a voltage controller since the constant speed drive will ensure constant voltage.
(b) does not need a voltage controller since an AC. generator voltage cannot alter under load.
(c) requires a voltage controller to maintain constant voltage under load.

16. Frequency, in a constant frequency power generation system, depends upon the :-

(a) speed of the engine.
(b) electrical load on the generator.
(c) speed of the generator drive.

17. An APU generator is driven by:

(a) its own dedicated gas turbine.
(b) an hydraulic motor.
(c) a ram air turbine.

18. A type of AC motor whose running speed is always less than the frequency of the supply is a :-

(a) universal type.
(b) squirrel cage type.
(c) synchronous type.

19. A static inverter is a :-

(a) solid state device which converts DC to AC.
(b) rotary device which is fixed to the airframe and cannot be moved.
(c) DC motor turning an AC generator.

20. An auto-transformer:

(a) varies the turns ratio automatically to maintain a constant output voltage with varying input voltage.
(b) has only one coil which is used as both primary and secondary.
(c) will maintain a constant output frequency with a varying supply frequency.

21. If the inductive reactance of electrical equipment decreases due to under-frequency in an AC. supply:-

(a) inductive devices may overheat and fail because of increased current flows.
(b) AC. motors may over speed.
(c) capacitive devices may suffer from over-voltage.

22. TRUE POWER is (1) _____ and is measured in (2) _____.

(a) (1) that power developed in pure resistive circuits. (2) Watts.
(b) (1) that power developed in reactive circuits. (2) VAR.
(c) (1) is the vector sum of A and B. (2) VA.

23. APPARENT POWER is (1) _____ and is measured in (2) ____.

(a) (1) that power developed in pure resistive circuits. (2) Watts.
(b) (1) that power developed in reactive circuits. (2) VAR.
(c) (1) is the vector sum of (a) and (b). (2) VA.

24. POWER FACTOR is defined as :-

(a) the sum of true and reactive power.
(b) the ratio between true power and apparent power.
(c) the ratio between inductive and capacitive power reactance .

25. Power Factor in a circuit with an imbalance of inductance and capacitance is :-

(a) greater than unity. (> 1).
(b) unity (= one).
(c) less than unity (< 1).