

SEM	SET	PAPER CODE	TITLE OF THE PAPER
II	2014	14PEL2107	POWER ELECTRONICS

**SECTION - A****Answer all the questions:****30 × 1 = 30****Choose the correct answer:**

- SCR is the solid state equivalent of \_\_\_\_\_.
  - Transistor
  - Thyratron
  - Vacuum diode
  - Crystal diode
- With gate open, if the supply voltage exceeds the breakover voltage of SCR, then SCR will conduct
  - false
  - true
  - for DC
  - for AC
- In a SCR circuit, the angle of conduction can be changed by changing
  - anode voltage
  - anode current
  - forward current rating
  - gate current
- An IGBT is a hybrid device combining the advantages of a MOSFET and \_\_\_\_\_.
  - UJT
  - BJT
  - TRIAC
  - all the above
- When the gate-emitter voltage of an IGBT is below threshold it operates in the \_\_\_\_\_ region.
  - saturation
  - positive
  - cut-off
  - all the above

6. The IGBT cell has a parasitic \_\_\_\_\_ structure embedded into it.
- a) Thyristor
  - b) Cell
  - c) Diode
  - d) Transparent
7. The magnetic amplifier circuit consists of two \_\_\_\_\_ core.
- a) Nickel – Iron
  - b) copper – iron
  - c) iron
  - d) all the above
8. The MMF reset control in a magnetic amplifier firing circuit introduces \_\_\_\_\_ time delay.
- a) small
  - b) larger
  - c) low
  - d) high
9. A single phase full wave firing pulse generator using \_\_\_\_\_ principle.
- a) Inverse – sine
  - b) magnetic field
  - c) sine wave
  - d) inverse – cosine
10. In carrier frequency gating circuit, the Flip-Flop provides the intelligence necessary to turn-on the \_\_\_\_\_ at correct time.
- a) correct SCR
  - b) diode
  - c) SCR
  - d) all the above
11. In synchronized UJT triggering of an SCR, voltage VC across capacitor reaches UJT threshold thrice in each half cycle so that there are three firing pulses during each half cycle. The firing angle of the SCR can be controlled.
- a) once in each half cycle
  - b) thrice in each half cycle
  - c) twice in each half cycle
  - d) four times in each half cycle
12. In carrier frequency gating circuit the gating pulses is in the range of \_\_\_\_\_ Hz frequency.
- a) 1000 Hz
  - b) 90 Hz
  - c) 50 Hz
  - d) 10 Hz
13. Chopper is a \_\_\_\_\_ converter.
- a) dc – to – ac
  - b) ac – to – dc
  - c) dc – to – dc
  - d) all the above

14. Chopper is a high speed \_\_\_\_\_ switch.  
a) static    b) dynamic    c) active    d) all the above
15. SCR used as a switch for \_\_\_\_\_ power applications.  
a) low    b) medium  
c) high    d) small
16. The series turn off circuit incorporating a \_\_\_\_\_ voltage between the SCR and the load.  
a) reverse    b) backward  
c) forward    d) high
17. To turn off a SCR, the reverse bias should be applied for a period \_\_\_\_\_ the turn-off time of the SCR.  
a) equal to    b) longer than  
c) less than    d) irrespective of
18. In class A and class B commutation the resonating circuit has to be \_\_\_\_\_.  
a) over damped    b) critically damped  
c) under damped    d) negatively damped
19. In steady state analysis of single phase half bridge inverter, when the time,  $t$  between 0 &  $T/2$ , the load voltage is \_\_\_\_\_.  
a)  $V_0 = -V_{s/2}$     b)  $V_0 = -V_s$   
c)  $V_0 = V_{s/2}$     d)  $V_0 = V_s$
20. In steady state analysis of single phase inverter, when the time,  $t = T$  the load current value is \_\_\_\_\_.  
a)  $I_0 = -I_{s/2}$     b)  $I_0 = I_s$   
c)  $i_0 = -I_0$     d)  $i_0 = I_0$
21. The step down cyclo converter needs \_\_\_\_\_ for its operation.  
a) PWM technique    b) force commutation  
c) multiple pole faces    d) phase controlled commutation
22. The current source inverter converts the \_\_\_\_\_.  
a) ac to dc current    b) dc to ac voltages  
c) dc to ac current    d) ac to dc voltages

23. The series inverter is also termed as \_\_\_\_\_.
- a) component commutated inverter      b) winding inverter
- c) single inverter      d) self commutated inverter
24. The frequency rate of step up cyclo converter is \_\_\_\_\_.
- a)  $f_0 > f_s$       b)  $f_0 < f_s$
- c)  $f_0 = f_{s2}$       d)  $f_0 / f_s$
25. In dc motor, the armature circuit loss is equal to \_\_\_\_\_.
- a)  $I_a^2$       b)  $V_a R_a$
- c)  $I_a^2 P_a$       d)  $I_a^2 R_a$
26. In two quadrant converters of single-phase SCR drive, the voltage value may be \_\_\_\_\_.
- a) only positive      b) only negative
- c) negative or positive      d) none of these
27. In dc motor, the pole face windings are used to reduce \_\_\_\_\_.
- a) armature      b) armature current
- c) armature resistance      d) armature inductance
28. In single-phase SCR drive, half-controlled bridge circuits, the average output power is always \_\_\_\_\_.
- a) decreased      b) positive
- c) increased      d) negative
29. The power difference between stator input and rotor output powers is called as \_\_\_\_\_.
- a) slip ring difference      b) horse power
- c) slippage power      d) torque power difference
30. In synchronous motor control, the torque of the motor depends on \_\_\_\_\_.
- a) armature current      b) armature voltage
- c) pole windings      d) stator current

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