Program: BE Electronics Engineering

Curriculum Scheme: Revised 2012

Examination: Final Year Semester VII

Course Code: EXC703 and Course Name: POWER ELECTRONICS-2

Time: 1 hour Max. Marks: 50

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Note to the students:- All the Questions are compulsory and carry equal marks .

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| Q1.  |  In sinusoidal pulse width modulation, \_\_\_\_\_\_\_\_\_\_ wave is compared with a \_\_\_\_\_\_\_\_\_\_\_ type of wave. |
| Option A: | square, sinusoidal |
| Option B: | sinusoidal, triangular |
| Option C: | sinusoidal, quasi-square |
| Option D:  | triangular, square |
|  |  |
| Q2. | Inversion is the process of converting |
| Option A: | AC power to DC Power |
| Option B: | DC Power to AC Power |
| Option C: | DC Power to DC Power |
| Option D: | AC Power to AC Power |
|  |  |
| Q3. | How many Switching states are there for SVM Controlled Technique |
| Option A: | 8 |
| Option B: | 7 |
| Option C: | 6 |
| Option D: | 4 |
|  |  |
| Q4. | In a three phase full controlled rectifier the SCR commutation is delayed due to \_\_\_\_\_\_\_\_. |
| Option A: | Source resistance effect |
| Option B: | Source inductance effect |
| Option C: | Highly resistive load |
| Option D: | Freewheeling diode |
|  |  |
| Q5. | Single-phase full bridge inverters requires |
| Option A: | Two MOSFETs |
| Option B: | One MOSFET |
| Option C: | Four MOSFETs |
| Option D:  | Three MOSFETs |
|  |  |
| Q6. | SVM is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ switching technique for inverters |
| Option A: | Switched Variable Mode  |
| Option B: | Space Vector Modulation  |
| Option C: | Switch Voltage Monitoring |
| Option D:  | Switch Voltage Mean |
|  |  |
| Q7.  | A dc voltage of 20V is required from fixed dc voltage source of 50V, select appropriate converter and duty cycle . |
| Option A: | Boost Converter with duty cycle 0.4 |
| Option B: | Buck Converter with duty cycle 0.4 |
| Option C: | Boost Converter with duty cycle 0.5 |
| Option D:  | Buck Converter with duty cycle 0.5 |
|  |  |
| Q8.  | A system is represented as \_\_\_\_\_\_\_\_ by state space model. |
| Option A: | the circuit diagram |
| Option B: | graphical diagram |
| Option C: | 3 dimensional view |
| Option D:  | the mathematical equation |
|  |  |
| Q9. | The output voltage of Boost converter is given by the formula, \_\_\_ |
| Option A: | -Vin ÷ D |
| Option B: | -DxVin ÷ (1 - D) |
| Option C: | Vin / (1-D) |
| Option D:  | D×Vin |
|  |  |
| Q10.  | Calculate the output voltage of the Boost converter if the supply voltage is 6 V and duty cycle value is 0.5 . |
| Option A: | 12V |
| Option B: | 24V |
| Option C: | 32V |
| Option D:  | 40V |
|  |  |
| Q11.  | Which of the following is not a part of UPS? |
| Option A: | Rectifier |
| Option B: | Inverter |
| Option C: | Battery |
| Option D:  | Induction motor |
|  |  |
| Q12.  | A comparison between AC and DC drives, separately excited DC motors are \_\_\_\_\_\_\_expensive than equivalent squirrel cage induction motor and power converters for DC drives are \_\_\_\_\_\_\_\_\_ expensive than AC drives.  |
| Option A: | more , less  |
| Option B: | more, more |
| Option C: | less, less |
| Option D: | less, more |
|  |  |
| Q13. | Which of the following statements is not true about the Induction Heating? |
| Option A: | It can be used for heating conductive and non-conductive material directly. |
| Option B: | Heating is not uniform throughout the work piece. |
| Option C: | Change in frequency affects the depth of penetration of heat. |
| Option D:  | Rate of heating is proportional to square of the current.  |
|  |  |
| Q14.  | For a semi converter controlled DC Motor with constant field supply, when does the armature current may become discontinuous? |
| Option A: | Small firing angles  |
| Option B: | Large firing angles  |
| Option C: | Firing angle is zero  |
| Option D:  | Does not depend on firing angle |
|  |  |
| Q15. | Calculate slip of four pole, 50Hz induction motor having rotor speed of 1410rpm |
| Option A: | 2 %  |
| Option B: | 4 % |
| Option C: | 6 % |
| Option D:  | 8% |
|  |  |
| Q16.  | For separately excited DC motor with back emf (E) and variable armature DC supply (V), regenerative braking is possible when  |
| Option A: | V=E |
| Option B: | V>E |
| Option C: | V<E |
| Option D:  | V=0 |
|  |  |
| Q17. | Which of the following is not an electric braking method for DC motor? |
| Option A: | Friction  |
| Option B: | Plugging |
| Option C: | Regenerative  |
| Option D: | Dynamic |
|  |  |
| Q18. | The variable frequency control of induction motors can obtained by |
| Option A: | Rectifiers only |
| Option B: | Cycloconverters only |
| Option C: | DC Choppers only |
| Option D:  | DC-DC Converter only |
|  |  |
| Q19.  | In regenerative braking of induction motor, |
| Option A: | the induction motor speed increases  |
| Option B: | the induction motor acts as induction generator |
| Option C: | any two phases are interchanged to achieve it |
| Option D:  | regeneration cannot be achieved for induction motor  |
|  |  |
| Q20. | For induction motor harmonic currents lead to |
| Option A: | Excessive heating of motors |
| Option B: | Power factor improvement |
| Option C: | Improvement in efficiency  |
| Option D: | Improvement in working life of motor |
|  |  |
| Q21. | For induction motor in the constant torque region, motor power P is  |
| Option A: | directly proportional to product of Torque in Nm and speed in rad/s  |
| Option B: | inversely proportional to product of Torque in Nm and speed in rad/s  |
| Option C: | directly proportional to product of Torque in Nm only |
| Option D:  | inversely proportional to product of Torque in Nm only |
|  |  |
| Q22.  | A variable frequency (V/f) drive for an induction motor can be implemented using \_\_\_\_\_\_\_\_ (with supply at extreme left and motor at extreme right)  |
| Option A: | AC Supply followed by diode rectifier followed by PWM inverter followed by induction motor  |
| Option B: | AC Supply followed by PWM inverter followed by diode rectifier followed by induction motor  |
| Option C: | AC Supply followed by controlled rectifier followed by diode rectifier followed by induction motor |
| Option D:  | AC Supply followed by induction motor |
|  |  |
| Q23. | Slip (s) of induction motor in motoring region is  |
| Option A: | s > 1 |
| Option B: | s < 0 |
| Option C: | s > 2 |
| Option D:  | 0 < s < 1 |
|  |  |
| Q24.  | Calculate the number of poles of the 415V, 50 Hz three phase induction motor having synchronous speed of 1500 rpm. |
| Option A: | 2 |
| Option B: | 4 |
| Option C: | 6 |
| Option D:  | 8 |
|  |  |
| Q25. | The synchronous speed of induction motor is |
| Option A: | directly proportional to supply frequency |
| Option B: | inversely proportional to supply frequency |
| Option C: | directly proportional to square of supply frequency |
| Option D:  | inversely proportional to square of supply frequency |