Total No. of Questions : 6]

SEAT No. :

P5078

[Total No. of Pages : 2

T.E./Insem.-626

T.E. (Electrical) (Semester - I)

ADVANCE MICROCONTROLLER & ITS APPLICATIONS

(2015 Pattern)

Time : 1 Hour] *[Max. Marks : 30*

Instructions to the candidates:

1) ***Answer Q.1 or Q.2, Q.3 or Q.4, Q.5 or Q.6.***
2) ***Neat diagrams must be drawn wherever necessary.***
3) ***Figures to the right side indicate full marks.***
4) ***Assume suitable data if necessary.***

Q1) a) Compare CISC and RISC architectures. **[6]**

b) Write an assembly language program for PIC18f458 microcontroller to load contents of working register to internal data memory location 0x203. **[4]**

OR

Q2) a) Explain Stack organization of PIC 18f458 microcontroller. Draw the stack pointer register. **[6]**

b) Explain the function of Program counter and Bank Select Register. **[4]**

Q3) a) Explain the following instruction: **[5]**

i) BSF PORTD, 0,0.

ii) ADDWFC 0x20,0,0.

Note that Generalized formats for above instructions are as follows:

i) BSF f,b,a.

ii) ADDWFC f,d,a.

b) Write an assembly language program for PIC18f458 microcontroller to copy data from PORTB to PORTC. **[5]**

P.T.O.

OR

Q4) a) Explain the SFR's related to I/O Ports of PIC18f458 microcontroller. **[5]**

b) Write an assembly language program for PIC18f458 microcontroller to add contents of a location 0x200, and 0x201, store result at 0x202. **[5]**

Q5) a) Write a short note on C data types for PIC 18 microcontroller. **[6]**

b) Write a program in C to set RB0 bit of PORT B. Assume the crystal frequency to be 10 MHz. **[4]**

OR

Q6) a) Write a C18 program to toggle all bits of PORT B continuously with a delay of 250 ms. **[6]**

b) Draw the T0CON register and explain the use of Pre-scalar. **[4]**

Total No. of Questions : 6] **SEAT No. :**

P5384 **[Total No. of Pages : 2**

T.E./Insem.-629
T.E. (Electrical)
EIMT

Time : 1 Hour] ***[Max. Marks : 30***

Instructions to the candidates:-

1) ***Answers Q.1 or Q.2, Q.3 or Q.4, Q.5 or Q.6.***
2) ***Neat diagrams must be drawn wherever necessary.***
3) ***Figures to the right indicate full marks.***
4) ***Use of logarithmic tables slide rule, Mollier charts, electronic pocket calculator and steam tables is allowed.***
5) ***Assume suitable data, if necessary.***
6) ***Your answers will be valued as a whole.***

Q1) a) Explain General design consideration of the distribution feeder. **[4]**

b) A single phase distributor AB has R = 0.2 Ω and X = 0.3 Ω, at far end B. the voltage V_B is 240V and current 80A at pf 0.8 lagg. At mid-point. current is 100A at 0.6 pf lagging w.r.t. to voltage V_A at A. Find Supply voltage and Phase angle between V_A and V_B? **[6]**

OR

Q2) a) Explain the voltage level of Ring Type Distribution Feeder. **[3]**

b) Explain the difference between Overhead Transmission line and Underground transmission line based on volume of conductor? **[3]**

c) State and explain the Kelvin's Law? **[4]**

Q3) a) List the types of Bus Bar system? Explain any one. **[4]**

b) Explain the terms : **[6]**

i) Touch Voltage

ii) Step Voltage

OR

P.T.O.

Q4) a) Explain with the help of diagram Pipe Earthing. **[5]**

b) Explain with Diagram Peterson coil Grounding. **[5]**

Q5) a) Write short notes on following : **[6]**

i) Polarization Index.

ii) Dielectric absorption test.

b) Explain preventive maintenance of transformer. **[4]**

OR

Q6) a) Explain use of Thermography in power systems. **[4]**

b) Explain the factors affecting the life of Insulation. **[6]**

Total No. of Questions : 6]

SEAT No. :

P5079

[Total No. of Pages : 2

T.E./Insem.-627

T.E. (Electrical) (Semester - I)

ELECTRICAL MACHINES - II

(2015 Pattern)

Time : 1 Hour] *[Max. Marks : 30*

Instructions to the candidates:

1) ***Answer Q.1 or Q.2, Q.3 or Q.4, Q.5 or Q.6.***
2) ***Neat diagrams must be drawn wherever necessary.***
3) ***Figures to the right indicate full marks.***
4) ***Use of electronic pocket calculator is allowed.***

Q1) a) Differentiate between smooth cylindrical & salient pole rotor used in large alternators. **[4]**

b) A 3 phase 16 pole synchronous generator has resultant air gap flux of 0.06 wb per pole. The flux is distributed sinusoidally over the pole. The stator has 2 slots per pole per phase. And 4 conductors per slot are accommodated. The coil span is 150° electrical. Calculate the phase value of induced emf when the machine runs at 375 rpm. **[6]**

OR

Q2) a) A 5 kvA 200v star connected 3 phase salient pole alternator with direct axis & quadrature axis reactance of 12Ω & 7Ω respectively, delivers full load current at unity p.f. calculate the excitation voltage. Negglect armature resistance. **[4]**

b) In case of synchronous generator, explain the effect of armature reaction at **[6]**

i) Zero p.f. lag.

ii) Zero p.f. lead.

P.T.O.

Q3) a) A 1200 kvA, 3300V, 50Hz 3 phase star connected alternator has effective armature resistance of 0.25 Ω per phase. A field current of 40A produces a short circuit current of 200 A and an open circuit emf of 1100V line to line. **[8]**

Calculate the voltage regulation at full load

i) 0.8 p.f. lag.

ii) 0.8 p.f. lead

b) Define short circuit ratio (SCR) in case of synchronous generator. **[2]**

OR

Q4) a) Explain synchronization of 3 phase alternator by dark lamp method. **[4]**

b) A 2 mvA, 3 phase, 8 pole alternator is connected to 6000 V, 50 Hz busbar & has synchronous reactance of 4Ω/phase. Calculate synchronising torque & synchronizing power per mechanical degree of rotor displacement at no load. Consider normal excitation. **[6]**

Q5) a) State different methods of starting 3 phase synchronous motor. Explain any one. **[4]**

b) A 3 phase 6600 V, 50Hz star connected synchronous motor takes 50A current. The resistance & synchronous reactance per phase are 1Ω & 20Ω respectivelly. Calculate the power supplied to the motor & induced emf at 0.8 p.f. lag. **[6]**

OR

Q6) a) Compare 3 phase synchronous motor with 3 phase Induction motor. **[4]**

b) With neat phasor diagram, explain the operation of synchronous motor at constant load and variable excitation condition. **[6]**

Total No. of Questions : 6]

SEAT No. :

P5081

[Total No. of Pages : 2

T.E./Insem. - 630

T.E. (Electrical) (Semester - I)

INDUSTRIAL AND TECHNOLOGY MANAGEMENT

(2015 Pattern)

Time : 1 Hour] *[Max. Marks : 30*

Instructions to the candidates:

1) ***Answer Q.1 or Q.2, Q.3 or Q.4, Q.5 or Q.6.***
2) ***Neat diagrams must be drawn wherever necessary.***
3) ***Figures to the right side indicate full marks.***
4) ***Assume suitable data if necessary.***

Q1) a) Explain the types of Business Ownership- **[6]**

i) Partnership Firm.

ii) Joint Stock Company.

iii) Public Sector Undertaking.

b) What are the methods of demand Forecasting? **[4]**

OR

Q2) a) Differentiate between administration & management. **[6]**

b) What are the types of Business Organization? Explain line, line and staff organization in detail. **[4]**

Q3) a) Write a short note on Technology Management at various levels. **[6]**

b) What is the Importance of Ethics in Technology Management? **[4]**

OR

Q4) a) Give the Classification of Technology and explain each in detail. **[6]**

b) What is the Importance of Technology Management for National Economy? **[4]**

P.T.O.

Q5) a) Write short note on quality system standard ISO 14001 : 2004. **[6]**

b) Write a short note on Ishikawa Diagram. **[4]**

OR

Q6) a) Write short note on:

i) Pokka Yoke. **[3]**

ii) Kaizen. **[3]**

b) Explain in detail Pareto Analysis. **[4]**

Total No. of Questions : 6] **SEAT No. :**

P5080 **[Total No. of Pages : 2**

T.E./Insem.-628
T.E. (Electrical)
POWER ELECTRONICS
(2015 Pattern)

Time : 1 Hour] ***[Max. Marks : 30***

Instructions to the candidates:

1) ***Solve Q.1 or Q.2, Q.3 or Q.4, Q.5 or Q.6.***
2) ***Neat diagrams must be drawn wherever necessary.***
3) ***Figures to the right indicate full marks.***
4) ***Use of calculator is allowed.***
5) ***Assume suitable data if necessary.***

Q1) a) Describe the different modes of operation of SCR with the help of V-I characteristic. **[5]**

b) Explain the following specifications of the thyristor. **[5]**

i) dv/dt.

ii) di/dt.

iii) I^2t.

OR

Q2) a) Explain the full wave R-C triggering circuit of Thyristor with the help of neat circuit diagram and output waveforms. **[6]**

b) Why is the reverse breakdown voltage greater than the forward breakdown voltage in SCR? **[4]**

Q3) a) Draw and explain the switching characteristics of IGBT. **[5]**

b) What is duty cycle of chopper and explain PWM & FM techniques of voltage control. **[5]**

OR

P.T.O.

Q4) a) Compare between Power MOSFET and BJT. **[4]**

b) Write short note on Class E Chopper. **[6]**

Q5) a) Explain the working of single phase semi converter bridge with RL load. Derive the expression for output voltage. **[5]**

b) With neat diagram explain the concept of overlap angle. Write formula to calculate voltage drop due to overlap. **[5]**

OR

Q6) a) Write short note on single phase dual converter. **[5]**

b) Derive expression for average output voltage and rms output voltage of a single phase fully controlled bridge converter with RL load (Assume continuous conduction). **[5]**