Enrollment No…….

Bachelor of Engineering
Fifth Semester Main Examination, December 2020
Utilisation of Electrical Energy [EX-501]
Branch- EX

Time: 3:00 Hrs **Max Marks 70**

Note : 1. Attempt any five questions out of eight.
2. All question carry equal marks.
3. Assume suitable data if necessary & state them clearly.

Q.1 (a) Briefly Explain Acceleration and braking retardation.
(b) Write short note on. Solid angle, luminous efficiency and cosine law.

Q.2 (a) Draw the circuit diagram for tube light connection having choke and stator.
(b) Explain Configuration and performance of electrical vehicles.

Q.3 (a) Explain refrigeration and air-conditioning.
(b) Explain load equalization of electrical braking.

Q.4 (a) Define Individual and collective drives.
(b) Explain vehicle performance and energy consumption

Q.5 (a) Define electrical braking and what are its types (explain).
(b) Explain Adhesive weight and coefficient of adhesion

Q.6 (a) Write short note on flood lightning and street lightning.
(b) Explain Mechanics of train movement with Speed Time Curve.

Q.7 (a) Explain different characteristics of traction motor.
(b) What are the special features of Traction motors and selection of Traction Motor.

Q.8 (a) Explain electric traction and their Advantages and disadvantage.
(b) Explain Laws of electrolysis and Define electroplating.

Enrollment No…….

Bachelor of Engineering
Fifth Semester Main Examination, December 2020
Electrical Machine- II [EX-502]
Branch-EX

Time: 3:00 Hrs **Max Marks 70**

Note : (i) Attempt any five questions out of eight.
(ii) All questions carry equal marks.

Q.1 (a) A 4-pole, wave-wound armature has 720 conductors and is rotated at1000 rev/min. If the useful flux is 20 mWb, calculate the generated voltage.
(b) Explain Working Principles and e.m.f. equation of DC machine.

Q.2 (a) Explain armature reaction and methods of limiting armature reaction.
(b) Write Short Notes on – a) permanent magnet DC motors b) Brush less dc motors.

Q.3 (a) Why is starter necessary for D.C. motor? Explain different types of starter in D.C motor.
(b) Explain Different Methods of speed control of DC motors.

Q.4 (a) Explain Swinburne's test and Hopkinson's test of D.C. motor.
(b) Explain Operating characteristics of DC motors.

Q.5 (a) Explain Construction and Principle of operation of 3-Phase Synchronous Machine.
(b) What is Prime mover? Explain brushless excitation System.

Q.6 (a) Explain equivalent circuit of alternator and emf equation of3-Phase Synchronous Machine.
(b) Explain voltage regulation of alternators using synchronous impedance Method.

Q.7 (a) Discuss briefly the effect of varying excitation and mechanical torque of a synchronous motor.
(b) Why is Synchronous motor not self starting? What methods are generally used to start the Synchronous motor?

Q.8 (a) What are the V-curves of a Synchronous motor? What are the main characteristics of a Synchronous motor?
(b) Explain parallel operation and load sharing of an alternator.

Enrollment No…….

Bachelor of Engineering
Fifth Semester Main Examination, Dec-2020
Microprocessors and Microcontrollers [EX-503]
Branch-EX

Time: 3:00 Hrs **Max Marks 70**

Note : Attempt any five questions. All questions carry equal marks.
Assume suitable data if necessary & state them clearly.

Q.1 (a) Explain with help of block diagram the 8086 Internal Architecture?

(b) Explain the working of 8255in BSR and I/O modes?

Q.2 (a) Explain with the help of block diagram 6845 CRT controller.
(b) Explain maskable and non-maskable interrupts.

Q.3 (a) Write short note on memory interfacing?
(b) Define assembly language program development tools in detail?

Q.4 (a) Explain general purpose register in detail?
(b) What do you mean by Instruction queue?

Q.5 (a) Explain architecture of 8051 micro controller.
(b) Describe addressing mode of 8086.

Q.6 (a) Explain data transfer mode of DMA controllers?
(b) Define the following:-
i. Editor
ii. Assembler
iii. Locator
iv. Debugger

Q.7 (a) Explain different JUMP instruction of 8086?
(b) Write about EEPROM and EROM?

Q.8 (a) What are the challenges in embedded system design?
(b) Explain the following memories :-
i. Main memory
ii. Secondary memory
iii. Cache Memory

Enrollment No……

Bachelor of Engineering
Fifth Semester Main Examination, Dec-2020
Power Electronics [EX-504]
Branch- EX

Time: 3:00 Hrs **Max Marks 70**

Note : Attempt any five questions. All questions carry equal marks.
Assume suitable data if necessary & state them clearly.

Q.1 (a) Explain with V-I characteristics of POWER MOSFET and IGBT.
(b) Explain two Transistor analogy of the thyristor.

Q.2 (a) Comparison of midpoint & Bridge rectifier circuits.
(b) Draw and explain the circuit diagram of Voltage source and current source inverter.

Q.3 (a) Explain Dual converter with circuit diagram.
(b) What are Harmonics? Explain reduction techniques.

Q.4 (a) Describe 1-phase fully controlled converter with R-L load with circuit diagram and output waveforms.
(b) Explain three phase cyclo convertor configuration and operating principles.

Q.5 (a) What is duty cycle? Explain the control strategies of output voltage in chopper.
(b) Discuss the Voltage control of single phase and three phase bridge inverter.

Q.6 (a) Explain class B commutation of SCR with circuit diagram and waveform.
(b) Explain the working of step-up chopper with waveforms.

Q.7 (a) Draw and explain the 180 degree mode of operation of three phase bridge inverter.
(b) Explain boost regulators with circuit diagram.

Q.8 (a) Explain snubber circuit. What is Ramp Triggering?
(b) Describe the different modes of operation of SCR with the help of V-I characteristics.

Enrollment No……

Bachelor of Engineering
Fifth Semester Mail Examination, Dec-2020
Energy Conservation & Management [EX-505]
Branch- EX

Time: 3:00 Hrs **Max Marks 70**

Note : Attempt any five questions. All questions carry equal marks.
Assume suitable data if necessary & state them clearly.

Q.1 (a) Write second law of thermodynamics and give its significance.
(b) What are the essential elements of energy monitoring and reporting?

Q.2 (a) List energy audit instruments and their function.
(b) What information is to be collected during the detailed audit process?

Q.3 (a) Explain waste heat recovery techniques in industries.
(b) Explain the demand side management in power system.

Q.4 (a) Explain the different types of tariffs used for electricity consumers.
(b) Discuss energy management and give its objectives.

Q.5 (a) Explain load curve? Explain time value of money.
(b) Explain power factor? Explain the Disadvantages of poor power factor.

Q.6 (a) Explain the Energy conservation in Sugar Industry.
(b) Explain power factor improvement methods in detail.

Q.7 (a) Explain Energy flow networks in detail.
(b) Explain Energy Conservation in transportation system.

Q.8 (a) Write the benefits of the Energy conservation in detail.
(b) Explain the Energy conservation in Textiles and Cement Industry.