Code No: 126AF **R13**

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B.Tech III Year II Semester Examinations, May - 2016
ENVIRONMENTAL STUDIES
(Electrical and Electronics Engineering)

Time: 3 hours **Max. Marks: 75**

Note: This question paper contains two parts A and B.
Part A is compulsory which carries 25 marks. Answer all questions in Part A. Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 10 marks and may have a, b, c as sub questions.

PART - A **(25 Marks)**

1.a)	What is carrying capacity and write about scope of ecosystem?	[2]
b)	What is Bioaccumulation and write its effects on living organisms?	[3]
c)	Classify the minerals based on properties and uses.	[2]
d)	Write about the characteristics of water.	[3]
e)	What is the difference between national park and reserve forest?	[2]
f)	List out at least 3 endemic and 3 endangered species of India.	[3]
g)	Write about the concept of Bioremediation.	[2]
h)	Differentiate deforestation and desertification.	[3]
i)	Write a note on Environmental ethics.	[2]
j)	Describe the concept of Green Building.	[3]

PART – B **(50 Marks)**

2. Explain Energy flow models with neat sketch. [10]

OR

3. Describe biomagnification and ecosystem value. [10]

4. What are the uses of forests and explain the causes and consequences of deforestation? [10]

OR

5. Explain at least 5 renewable resources along with their advantages and disadvantages. [10]

6. Write about National Biodiversity act and explain the uses of biodiversity. [10]

OR

7. Write about threats of Biodiversity and explain the conservation methods of Biodiversity [10]

8. Write the types, collection, segregation and disposal methods of solid waste. [10]

OR

9. Write about ozone depletion and explain the complete process of e-waste management. [10]

10.a) Explain Water act and Forest acts.
b) Write about hazardous waste management. [5+5]

OR

11.a) Explain the concept of EMP.
b) Describe the Biomedical waste handling rules. [5+5]

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R13

Code No: 126AG

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B.Tech III Year II Semester Examinations, May - 2016
COMPUTER METHODS IN POWER SYSTEMS
(Electrical and Electronics Engineering)

Time: 3 hours **Max. Marks: 75**

Note: This question paper contains two parts A and B.
Part A is compulsory which carries 25 marks. Answer all questions in Part A. Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 10 marks and may have a, b, c as sub questions.

PART - A (25 Marks)

1.a) Why the incidence matrices for a given network are not unique? [2]
b) What is primitive network? Write the performance equation of primitive network in admittance form. [3]
c) What are the limitations of Newton Raphson Method. [2]
d) What is advantage of acceleration factor in GS load flow method? [3]
e) Write the objective of finding fault levels at bus. [2]
f) Write the applications of series reactors. [3]
g) A synchronous machine having E=1.2pu is supplying power to an infinite bus with voltage 1.0pu. If the transfer reactance is 0.6pu, find the steady state power limit.[2]
h) What is the significance of Synchronizing power Coefficient? [3]
i) Write the methods to improve transient stability. [2]
j) Derive the swing equation. [3]

PART - B (50 Marks)

2. Derive the expressions for Bus admittance matrices by Singular transformation Method. [10]

OR

3. Derive the expression for adding a element between to existing buses of the existing network by using Z_{BUS} building algorithm? [10]

4.a) Write the necessity of power flow studies.
b) Develop the power flow model using decoupled method and explain the assumptions to arrive at the fast decoupled load flow method. [3+7]

OR

5.a) Define load flow problem. Classify the buses in power system and discuss the important of slack bus.
b) Describe the Newton Raphson method for the solution of power flow equations in power systems by deriving necessary equations. [4+6]

6.a) Why the analysis of unsymmetrical faults can be more easily done with the help of symmetrical components than by a direct solution of the unbalanced circuit.
b) Three 10MVA generators each having a reactance of 0.2pu are operating in parallel. They feed a transmission line through a 30MVA transformer having a per unit reactance of 0.05. Find the fault MVA for a fault at the sending end of line. [4+6]

OR

7.a) Why the phase shift in the positive sequence and negative sequence quantities through a stat delta transformer are opposite to each other?

b) The line current in three phase supply are I_a= 12+j24A, I_b=16-j2A and I_c=-4-j6A. The phase sequence is abc. Calculate the sequence components of currents. [4+6]

8.a) What is power system stability? Define stability limit of the system.

b) A 50Hz generator of reactance 1pu is connected to an infinite bus through a line of reactance of 0.5pu. E=1.1pu and V=1pu. The inertia constant is 5MW-sec/MVA. The generator is loaded to 50% of the maximum power limit. Find the frequency of natural oscillations. [3+7]

OR

9.a) Write short notes on methods to improve steady state stability of power System.

b) Derive the expression for steady state stability limit using ABCD parameters. [4+6]

10.a) Why the use of automatic reclosing circuit breakers improve system stability.

b) What is equal area criterion? Explain how it can be used to study stability with any suitable example. [4+6]

OR

11.a) List the assumptions made in the transient stability solution techniques.

b) A three phase generator delivers 1pu power to an infinite bus through a transmission network when a faulty occurs. The maximum power which can be transferred during prefault, during fault and post fault conditions is 1.75pu, 0.4pu and 1.25pu. Find critical clearing angle. [4+6]

R13

Code No: 126AH

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B.Tech III Year II Semester Examinations, May - 2016
ELECTRICAL AND ELECTRONICS INSTRUMENTATION
(Electrical and Electronics Engineering)

Time: 3 hours **Max. Marks: 75**

Note: This question paper contains two parts A and B.
Part A is compulsory which carries 25 marks. Answer all questions in Part A. Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 10 marks and may have a, b, c as sub questions.

PART - A (25 Marks)

1.a) What are the requirements of multiplier? [2]
b) What are the Errors in moving iron Instruments. [3]
c) What is A.C potentiometer? Give the applications of A.C potentiometer. [2]
d) Comment for the effect of power factor of secondary circuit of potential transformers. [3]
e) Define the phantom loading. [2]
f) Why it is necessary to make the potential coil circuit purely resistive? [3]
g) What are the different methods for measurement of medium resistance? [2]
h) What are the different sources of errors in a.c bridges? [3]
i) Classify the Transducers. [2]
j) Give the applications of CRO. [3]

PART - B (50 Marks)

2.a) Derive the equation for deflection of a PMMC in spring controlled.
b) Explain the methods for linearize of scale of repulsion type of moving iron instrument. [5+5]

OR

3.a) With neat block diagram, Explain the attracted disc type Electrometer in detailed.
b) Discuss the sensitivity of voltmeters in detail. [6+4]

4. Draw the equivalent circuit and phasor diagram of a current transformer. Derive he expressions for ratio and phase angle of errors. [10]

OR

5.a) Why a potentiometer does not load the voltage source whose voltage is being determined?
b) A Potentiometer consisting of a resistance dial having 15 steps of 10 ohm each and a series connected slide wire of 10 ohm which is divided into 100 divisions. If the working of current of the potentiometer is 15 mA and each division of the slide wire can read accurately up to 1/5 of its span. Calculate the resolution of the potentiometer in volts. [5+5]

6.a) What is the lag adjustment is provide in induction type single phase energy meter?
b) How C.T and P.T can be used to external the range of energy meter? [5+5]

OR

7.a) Derive the torque equation of an Electrodynameter type of wattmeter.
b) Explain why errors are large when the power factor is low. [6+4]

8. Obtain the equations for balance in case of Maxwell's inductance and capacitance bridge with necessary phasor diagram. [10]

OR

9.a) Explain the loss of charge method for measuring high resistance.
b) A highly sensitive galvanometer can detect a current as low as 0.1 nA. This galvanometer is used in a Wheatstone bridge as a detector. The resistance of galvanometer is negligible. Each arm of the bridge has a resistance of 1K ohm. The input voltage applied to the bridge is 20V. Calculate the smallest change in the resistance, which can be detected. [5+5]

10.a) Explain the working principle of strain gauge. Derive its gauge factor.
b) Give the applications of thermistors. [6+4]

OR

11. Derive the expression for vertical deflection of an electron beam in a CRT with neat sketches. [10]

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R13

Code No: 126AJ

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B.Tech III Year II Semester Examinations, May - 2016
STATIC DRIVES
(Electrical and Electronics Engineering)

Time: 3 hours **Max. Marks: 75**

Note: This question paper contains two parts A and B.
Part A is compulsory which carries 25 marks. Answer all questions in Part A. Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 10 marks and may have a, b, c as sub questions.

PART - A

(25 Marks)

1.a)	Explain what is meant by rectification mode?	[2]
b)	What is the principle of phase control?	[3]
c)	What is four quadrant operation? Explain.	[2]
d)	Draw the equivalent circuit of dual converter driving a dc motor.	[3]
e)	Give three advantages of chopper drives compared to rectifier drives.	[2]
f)	What are the two control strategies of dc chopper?	[3]
g)	What are the applications of rotor resistance control?	[2]
h)	What are the advantages of Kramer drive compared to scherbius drive?	[3]
i)	What are the applications of load commutated CSI fed synchronous motor?	[2]
j)	Explain briefly about closed loop operation of synchronous motor drive.	[3]

PART - B

(50 Marks)

2.a) Derive the expression for critical speed which separates continuous conduction from discontinuous conduction for a 1-Φ full converter fed separated excited dc motor.

b) A 200V, 875 rpm, 150A separately excited dc motor has an armature resistance of 0.06 ohm. It is fed from a single phase fully controlled rectifier with an a.c source voltage of 220V, 50Hz. Assuming continuous conduction mode. Calculate:
i) Firing angle for rated motor torque and 750 rpm
ii) Firing angle for rated motor torque and 500 rpm
iii) Motor speed for a firing angle of 160^0 and rated torque. [5+5]

OR

3.a) Derive the relation between speed and torque of a single phase full wave converter feeding a series excited dc motor for continuous mode of operation and draw its speed-torque characteristics.

b) Explain the effect of armature inductance on the performance of a d.c drive. [5+5]

4.a) Draw the speed torque characteristics for dynamic braking of d.c series motor. Why torque becomes zero at finite speed?

b) Discuss relative merits and demerits of four quadrant d.c drives employing non-circulating and circulating current dual converters. [5+5]

OR

5.a) Draw speed torque characteristic for regenerative braking operation of a d.c shunt motor and explain the operation.

b) Explain the principle of operation of closed loop control of dc drive using suitable block diagram. [5+5]

6.a) Derive the expressions for average motor current, ripple in motor currents and average torque for chopper fed separately excited d.c motor.

b) A dc chopper is used for regenerative braking of a separately excited d.c motor. The dc supply voltage is 400V. The motor has R_a=0.2Ω, K_m=1.2V-S/rad. The average armature current during regenerative braking is kept constant at 300A with negligible ripple. For a duty cycle of 60% for a chopper, determine

i) Power returned to supply

ii) Minimum and maximum permissible braking speeds and speed during regenerative braking. [5+5]

OR

7. Explain in detail the two quadrant and four quadrant operation of chopper fed separately excited DC motor. [10]

8.a) Explain plugging operation of 3-Φ induction motor and also explain how it is implemented using AC voltage controllers.

b) Explain why stator voltage control is an inefficient method of induction motor speed control. [5+5]

OR

9.a) Discuss about the different speed control methods of induction motor from rotor side.

b) Draw a suitable diagram and explain the working of slip power recovery system using static Scherbius drive. [5+5]

10. With suitable circuit diagram explain the principle of operation of current source inverter fed synchronous motor drive. [10]

OR

11.a) Explain the operation of a cyclo-converter fed synchronous motor.

b) Explain the operation of a load commutated CSI fed synchronous motor. [5+5]

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Code No: 126AK **R13**

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B.Tech III Year II Semester Examinations, May – 2016
MICROPROCESSORS AND INTERFACING DEVICES
(Electrical and Electronics Engineering)

Time: 3 hours **Max. Marks: 75**

Note: This question paper contains two parts A and B.
Part A is compulsory which carries 25 marks. Answer all questions in Part A. Part B consists of 5 Units. Answer any one full question from each unit.
Each question carries 10 marks and may have a, b, c as sub questions.

PART - A

(25 Marks)

1.a) What is meant by Memory segmentation? [2]
b) Name the special purpose registers and write the function of each register. [3]
c) Give the CALL instruction operation. [2]
d) Name different types of assembler directives, explain any two. [3]
e) Define interrupt service routine. [2]
f) Compare Static and Dynamic memories. [3]
g) Define prototype. [2]
h) Explain the serial data transfer schemes operation. [3]
i) Compare microprocessor and microcontroller. [2]
j) List different instruction set groups of 8051 µc. [3]

PART - B

(50 Marks)

2.a) Draw read and write timing diagrams of 8086-Maximum mode.
b) Draw the structure of 8086 flag register and explain the bits. [5+5]

OR

3.a) Explain the Register set of 8086 processor.
b) Write short note on interrupt structure of 8086. [5+5]

4.a) Write a sorting program in 8086 assembly language in a Ascending order.
b) Write an assembly language program to solve the expression $7x^2 +3x+10=y(x)$. [5+5]

OR

5.a) Write an assembly language program to find whether the given number is prime or not?
b) Explain the addressing modes of 8086. [5+5]

6.a) Draw the structure of 8086 interrupt vector table and explain.
b) Explain the significance of cascading 8259 controller. [5+5]

OR

7.a) Interface a typical 12-bit DAC with 8255 and write a program to generate a Square waveform of period 10ms. The CPU run at 5 MHz clock frequency.
b) Explain why 8255 ports are divided into two groups? Discuss how these groups are controlled in different modes of operation? [5+5]

8.a) Explain TTL to RS 232C and explain high speed serial communication standards and USB.

b) Explain Asynchronous transmission in serial mode. [5+5]

OR

9.a) Explain the line driver and the line receiver circuits of serial communication.

b) What do you mean by I/O mapped I/O? Draw the interfacing of 8251 with 8086 in I/O mapped I/O mode. [5+5]

10.a) Explain various operation modes of Timer-1 and Timer-0.

b) Describe the Timer control (TCON) and Timer mode control (TMOD) registers. [5+5]

OR

11. Explain the various addressing modes of 8051 with suitable example. [10]

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R13

Code No: 126EA

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B.Tech III Year II Semester Examinations, May – 2016
INTELLECTUAL PROPERTY RIGHTS
(Common to EEE, ME, ECE, CHEM, EIE, IT, MCT, MMT, AE, AME, MIE, AGE)

Time: 3 hours **Max. Marks: 75**

Note: This question paper contains two parts A and B.
Part A is compulsory which carries 25 marks. Answer all questions in Part A. Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 10 marks and may have a, b, c as sub questions.

PART - A

(25 Marks)

1.a)	List out the types of intellectual property rights.	[2]
b)	Discuss the treaties of Intellectual property rights.	[3]
c)	What is the purpose of trademark?	[2]
d)	Discuss about the protectable matter.	[3]
e)	What is rights of reproduction?	[2]
f)	State international copyright law.	[3]
g)	Define trade secret law.	[2]
h)	Discuss about false advertising.	[3]
i)	What are new developments in trademark law?	[2]
j)	Explain international property audits.	[3]

PART - B

(50 Marks)

2. With an example, outline the importance of intellectual property rights. [10]

OR

3. Explain the historical view of intellectual property rights. [10]

4. Explain the procedure for registration of trade marks. What are the effects of registration of trade mark? [10]

OR

5. With the help of an example explain the process for acquisition of trademark rights. [10]

6. List out the issues involved in copyright ownership. [10]

OR

7. Explain the process involved for searching of a patent. [10]

8. State and explain the trade secret Law. Explain the liability for misappropriations of trade secrets. [10]

OR

9. Discuss the legalities involved in protecting against unfair competition. [10]

10. Describe in detail about the international development in patent law. [10]

OR

11. What are the new developments in copy right law and patent law? Explain. [10]

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Code No: 126EB

R13

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

B. Tech III Year II Semester Examinations, May - 2016

HUMAN VALUES AND PROFESSIONAL ETHICS

(Common to EEE, ME, ECE, EIE, IT, MCT, AE, MIE, PTE, AGE)

Time: 3 hours **Max. Marks: 75**

Note: This question paper contains two parts A and B.
Part A is compulsory which carries 25 marks. Answer all questions in Part A. Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 10 marks and may have a, b, c as sub questions.

PART - A

(25 Marks)

1.a) What is the need for 'Value Education' in technical and other professional institutions? [2]
b) What is the difference between 'belief' and 'understanding'? [3]
c) Suggest any 2 programs that you can undertake to improve the health of your body? [2]
d) How do we go into conflicts when our activities are not guided by one natural acceptance? [3]
e) Explain the term "Anu – Sangita". [2]
f) What can be the basis of an undivided society- the "World family"? [3]
g) Define sah-astitva? [2]
h) Explain the term "nature submerged in space" with reference to existence? [3]
i) What are the objectives of professional ethics? [2]
j) Differentiate existence and co-existence. [3]

PART - B

(50 Marks)

2.a) Justify the role of self exploration as in the process of Value Education?
b) What are pre conditions? What is their source? [5+5]

OR

3.a) Critically examine the prevailing notion of happiness and prosperity and their consequences?
b) What is the true essence of happiness and prosperity? [5+5]

4.a) What are the consequences of confusion between Sukh and Suvidha?
b) "Human being is more than just the Body"- explain? [5+5]

OR

5.a) Why are the Physical facilities required? What do you mean by right utilization of Body?
b) How does realization and understanding lead to definiteness of human conduct? [5+5]

6.a) The major crisis in today's society is that of Trust and Respect-Elucidate?
b) What is "Justice" what are its four elements? Is it a continuous or a temporary need? [5+5]

OR

7.a) Explain the dimensions of human Endeavour in society conducive to manaviya Vyavastha?
b) What is the meaning of Education and Sanskara? How does Sanskara follow education? [5+5]

8.a) Briefly explain the holistic perception of harmony at all levels of existence.
b) Describe the recyclability and self-regulation of nature. [5+5]

OR

9.a) Explain the four orders in nature.
b) Differentiate between units and space. How are units self-organized in space? [5+5]

10. Mention the steps that you can take to promote ethics among your colleagues over unethical practices prevailing? [10]

OR

11.a) Explain the holistic alternatives and describe the vision for the holistic alternatives.
b) Explain the competence process in professional ethics. [5+5]

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R13

Code No: 126EC

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B.Tech III Year II Semester Examinations, May - 2016
DISASTER MANAGEMENT
(Common to EEE, ME, ECE, CHEM, EIE, BME, IT, AE, AME, MIE, PTE, MSNT, AGE)

Time: 3 hours **Max. Marks: 75**

Note: This question paper contains two parts A and B.
Part A is compulsory which carries 25 marks. Answer all questions in Part A. Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 10 marks and may have a, b, c as sub questions.

PART - A

(25 Marks)

1.a)	What is environmental hazard?	[2]
b)	How to prevent a Hazard from changing into a disaster?	[3]
c)	Give examples of Planetary Hazards.	[2]
d)	What are various types of environmental Hazards?	[3]
e)	Distinguish between tropical cyclones and local storms.	[2]
f)	What monitoring systems are used for tracing the path of cyclones?	[3]
g)	What are the hazardous effects of volcanoes?	[2]
h)	What causes earthquakes?	[3]
i)	What are the three stages of disaster management?	[2]
j)	List three pre-disaster activities to reduce the impact of cyclones.	[3]

PART - B

(50 Marks)

2.a) Distinguish between environmental stress, hazard and disaster giving examples.
b) Describe Ecosystem approach to mitigate environmental stress. In what way it is different from the perception approach? [5+5]

OR

3.a) How does human perception changes with environmental degradation? Discuss.
b) How does landscape approach aid in reducing environmental stress? Give examples. [5+5]

4.a) How is environmental hazard linked to ecology? Explain with respect to Drought.
b) Drought and floods occur in the same region but at different times. Explain the reason. [5+5]

OR

5.a) Distinguish between endogenous and exogenous hazards giving examples.
b) Under what category will cyclones come? Explain with reasons. [5+5]

6.a) In what Zones earthquakes occur in India? Explain the reason why it occurs in those Zones?
b) What are the pre-disaster measures are taken to prevent loss of life due to this hazard? [5+5]

OR

7.a) What are the environmental effects due to volcanic eruption?
b) Discuss the methods that can be adopted to reduce the effect of volcanic eruption. [5+5]

8.a) Under what category will you put Bhopal Gas tragedy in India?
b) What are toxic chemicals and describe a few measures that can be taken to reduce the impact of such events? [5+5]

OR

9.a) Describe the areas of flood hazard in India. What causes floods?
b) Describe at least three flood control measures to reduce the impact of flood disaster. [5+5]

10.a) What are the pre disaster measures taken to manage earthquake disaster?
b) Relate the building collapse during earthquake to impact of earthquake disaster and explain both pre and post disaster measures undertaken to mitigate the sufferings of people in an earthquake situation. [5+5]

OR

11.a) Describe the measures taken during a land slide disaster.
b) What pre disaster measures would have reduced the impact of land slide disaster? Explain. [5+5]

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