

FACULTY OF ENGINEERING**B.E. 2/4 (CE/ECE/AE/CSE) II - Semester (Backlog) Examination, May / June 2018****Subject : Environmental Studies****Time : 3 Hours****Max. Marks: 75****Note: Answer all questions from Part-A & any five questions from Part-B.****PART – A (25 Marks)**

1. Enumerate the limitations and advantages of dams. (3)
2. Name and explain the various segments involved in the environment. (2)
3. Show the flow chart of components and ecosystem and explain the terms. (3)
4. What is the significance of oxygen cycle in preserving the Ecosystem ? Explain. (3)
5. Why do we need to conserve biodiversity ? (2)
6. What are endangered species ? Give few examples of the same in India. (2)
7. Define the term solid waste management. (2)
8. Enumerate the objectives of air pollution act. (3)
9. By means of neat sketch, highlight various cycles of disaster management. (2)
10. What are the factors to be followed for disaster preparedness ? Explain. (3)

PART-'B'(50 Marks)

11. a) Discuss in brief the problems encountered by fertilizers and pesticides. (4)
b) What are the various protection measures adopted for floods and drought. (6)
12. a) What are the functions and components of grassland ecosystem ? Describe by means of a neat sketch. (5)
b) Detail the important differences between different renewable and non-renewable resources along with the reasons for their conservation. (5)
13. a) How do you conserve the biodiversity by means of in-site measure ? Explain. (5)
b) Enumerate and explain in brief various values of biodiversity in detail. (5)
14. a) What is the significance of Forest Conservation Act ? Explain what an individual can do to protect this act. (5)
b) Show the detailed bio-geographical classification of India. (5)
15. a) Describe any two man-made disasters with suitable example. (5)
b) Discuss in brief the Ozone effect and Climate change. (5)
16. a) Enumerate the factors responsible for proper enforcement of Environmental Legislation. (5)
b) Describe by means of neat sketch, the methodology involved in disaster management. (5)
17. Write a short note on the following.
 - a) Principle of solid waste management. (5)
 - b) Population Explosion. (5)

FACULTY OF ENGINEERING

B.E. 2/4 (EEE) II Semester (Backlog) Examination, May / June 2018

Subject: Power Systems- I

Time: 3 Hours

Max. Marks: 75

**Note: Answer all questions from Part A & any five questions from Part B.
PART-A (25 Marks)**

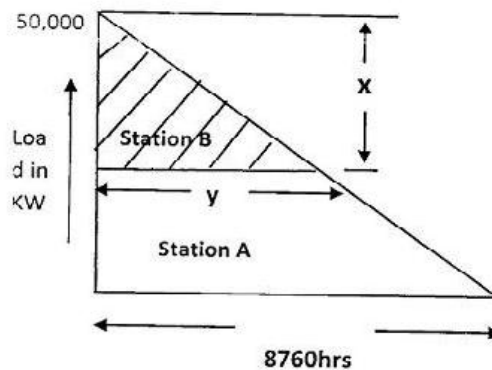
- | | |
|--|---|
| 1. What is the effect of ice and wind on sag? | 3 |
| 2. Define Load curve, load duration Curve, diversity factor | 3 |
| 3. Explain capacitance grading of a cable. | 3 |
| 4. What are the various methods to improve power factor | 2 |
| 5. List the various parts of a cable | 2 |
| 6. What are the advantages of Nonconventional energy sources over conventional energy sources? 2 | |
| 7. Where is the electric stress of a single core cable maximum? Why? | 3 |
| 8. Write about self GMD & mutual GMD | 2 |
| 9. What is the function of economizer? | 2 |
| 10. What are the advantages of bundled conductors? | 3 |

Part-B(5 X 10 =50 Marks)

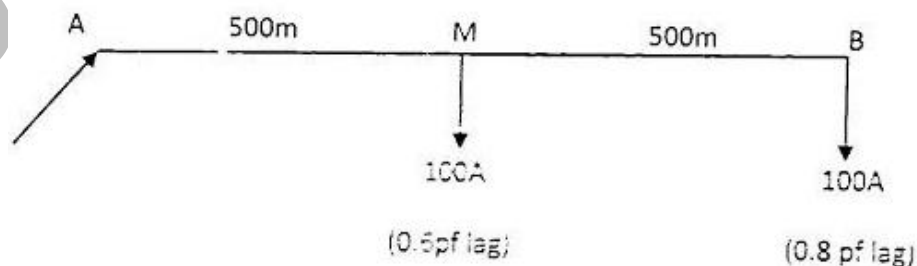
- | | |
|--|----|
| 11 a) What considerations have to be kept in view in siting a hydel power plant | 5 |
| b) Give complete classification of hydro electric power plants | 5 |
| 12. a) Derive an expression for sag in overhead lines when supports are at unequal levels | 5 |
| b) A transmission line conductor having a diameter of 20mm weighs 0.9kg/m. The span is 370m. The wind pressure is 40kg/m ² of projected area with ice coating of 15mm. The ultimate strength of the conductor is 8000kg. Calculate the maximum sag if the factor of safety is 3 and ice weighs 1000kg/m ³ | 5 |
| 13 Derive an expression for line to neutral capacitance for a three phase unsymmetrical spaced transposed transmission line | 10 |
| 14 Each line of a 3-phase system is suspended by a string of 3 identical insulators of self- inductance C farad. The shunt capacitance of connecting metal work of each insulator is 0.2C to earth and 0.1C to line. Calculate the string efficiency of the system if a guard ring increases the capacitance to the line of metal work of the lowest insulator to 0.3C | 10 |

-2-

- 15 The load duration curve of a system for the whole year of 8760 hours is as shown in figure below. The system is supplied by two stations A & B having the following annual costs :
- Station A – Rs $(75,000 + 80 \cdot \text{kW} + 0.02 \cdot \text{kWh})$
 Station B = Rs $(50,000 + 50 \cdot \text{kW} + 0.03 \cdot \text{kWh})$
- Determine the installed capacity required for each station and for how many hours per year peak load station should be operated to give the minimum cost per unit generated. 10



- 16 a) How can solar energy be converted into electrical energy? Give a diagram showing the elements of such a plant 5
 b) List sequence of steps in coal handling 5
17. A single Phase distributor one km long has impedance of $(0.1 + j0.15)$. At the far end, the voltage $V_B = 200\text{V}$ and the current is 100A at a p.f. of 0.8 lagging. At the midpoint M of the distributor, a current of 100A is tapped at a p.f. of 0.6 lagging with reference to the voltage V_M at the midpoint. Calculate. 10
- (i) Voltage at midpoint
 (ii) Sending end voltage V_A
 (iii) Phase angle between V_A & V_B



FACULTY OF ENGINEERING
B.E. 2/4 (Inst.) II - Semester (Backlog) Examination, May 2018

Subject : Thermodynamics & Fluid Mechanics

Time : 3 Hours

Max. Marks: 75

Note: Answer all questions from Part-A & any five questions from Part-B.

PART – A (25 Marks)

- 1 Define Clausius inequality.
- 2 Explain the second law of thermodynamics.
- 3 List out the applications of compressed air.
- 4 Explain multi-stage reciprocating air compressor. Also show that the work saved in multi-stage compressor in a P-V diagram.
- 5 Define path line, stream line and streak line.
- 6 Explain the velocity potential function.
- 7 Differentiate between venturimeter and orificemeter.
- 8 List out the devices used for measurement pressure.
- 9 Write short notes on Moody's chart.
- 10 What do you understand by boundary layer theory?

PART – B (50 Marks)

- 11 A six-cylinder, four-stroke petrol engine having a bore of 90 mm and stroke of 100 mm has a compression ratio of 7. The relative efficiency with reference to indicated thermal efficiency is 55% when the indicated s.f.c. is 0.3 kg/Wh. Estimate the calorific value of the fuel and fuel consumption, given that the IMEP is 8.5 bar and speed is 2500 rpm.
- 12 (a) Differentiate between impulse and reaction turbine.
 (b) A gas turbine unit has a pressure ratio of 6 : 1 and maximum cycle temperature of 615°C. The isentropic efficiencies of the compressor and turbine are 0.75 and 0.85 respectively. Calculate the power output in kilowatts of an electric generator geared to the turbine when the air enters the compressor at 15°C at the rate of 16 kg/s. Take $C_p=1.005$ kJ/kg-K and $\gamma = 1.4$ for the compression process, and take $C_p=1.11$ kJ/kg-K and $\gamma = 1.333$ for the expansion process.
- 13 (a) Define stream function. Explain the relation between stream function and velocity potential function.
 (b) The velocity potential function is given by $\Phi = 5(x^2 - y^2)$.
- 14 (a) Derive Bernoulli's equation. List out its assumptions.
 (b) State practical applications of Bernoulli's equation.
- 15 (a) Write short notes on laminar and turbulent flow in circular pipes.
 (b) Define friction factor. Explain loss of energy due to fluid friction.
- 16 (a) Explain the working principle of closed cycle gas turbine with the help of T-S diagram?
 (b) List out the properties of stream function.
- 17 (a) Classify IC engines and mention their applications.
 (b) Expression of work done in multi-stage compressor.
 (c) Explain Reynold equation and its significance

FACULTY OF ENGINEERING

B.E. 2/4 (M/P) II - Semester (Backlog) Examination, May / June 2018

Subject : Thermodynamics

Time : 3 Hours

Max. Marks: 75

Note: Answer all questions from Part-A & answer any five questions from Part-B.**PART – A (25 Marks)**

- 1 Explain Reversibility & Irreversibility.
- 2 Give some examples of Intensive & Extensive properties.
- 3 Write steady flow energy equation for a Nozzle.
- 4 Explain first law of thermodynamics with the help of Joules experiment.
- 5 What is P-V-T surface.
- 6 What is Clausius theorem.
- 7 Sketch P-V diagram of Stirling Cycle.
- 8 Define triple point.
- 9 How do you define air standard cycle.
- 10 What is Amagat –Leduc Law of partial volumes?

PART-B (5X10=50 Marks)

- 11 (a) Explain Microscopic & Macroscopic approach of thermodynamics.
(b) Explain the working of Ideal gas thermometer.
- 12 (a) Air at 1.02 bar, 22°C initially occupying a cylinder volume of 0.015m³ is compressed reversible and adiabatically by a piston to a pressure of 6.8 bar calculate i) Final Temperature (ii) Final Volume (iii) Work Done.
(b) Derive the expression for work done during Polytropic process.
- 13 (a) What is Clausius inequality. Give its significance.
(b) State & Prove the equivalence of Kelvin Plank & Clausius statements.
- 14 (a) State (i) Maxwells Relations (ii) Clapeyron Equation.
(b) Explain the formation of steam with the help of suitable graphs.
- 15 (a) Explain the working of Diesel cycle with the help of T-S & P-V graphs.
(b) Explain Volumetric & Gravimetric analysis.
- 16 (a) What are different temperature scales?
(b) Steam at 120bar has a specific volume of 0.01721m³/kg, find temperature , enthalpy and internal energy.
- 17 (a) Define Helmholtz equation.
(b) The efficiency of Otto cycle is 60% and ratio of specific heats is 1.5, find compression ratio.

FACULTY OF INFORMATICS

BE. 2/4 (I.T) II – Semester (Backlog) Examination, May / June 2018

Subject: Web Technologies

Time: 3 Hours

Max. Marks: 75

Note: Answer all Questions from Part A & any Five Questions from Part B

PART – A (25 Marks)

- | | |
|---|---|
| 1. Write Java script function to validate email-id. | 2 |
| 2. Differentiate HTTP-GET and POST requests. | 2 |
| 3. Write XHTML code to insert image element. | 2 |
| 4. What is XML Processor? | 2 |
| 5. List the differences between HTML and XML. | 3 |
| 6. List the differences between servlets and JSP's? | 3 |
| 7. State the features of WSDL. | 3 |
| 8. What is AJAX? | 2 |
| 9. Mention different types of JSP elements | 3 |
| 10. How is schema better over DTD? | 3 |

PART - B (50 Marks)

- | | |
|---|----|
| 11. a) What is the advantage of document-level style sheets over inline style sheets? | 3 |
| b) Explain box model of CSS with an example. | 7 |
| 12. a) Write a DTD for the XML document which has the student details with the following fields – roll number, name, course, address. Assume values for each field. | 7 |
| b) Write a CSS file for the above XML document. | 3 |
| 13. Design a html page to display name, fathers name, designation, address in a form.
Write a Servlet Program to display the form data in a table. | 10 |
| 14. a) How to handle exception in JSP. | 3 |
| b) Explain the life cycle of JSP. | 7 |
| 15. a) Explain different web form controls in ASP.Net with examples. | 5 |
| b) Explain different validation controls that are used in ASP.NET | 5 |
| 16. a) Describe the general structure of SOAP message and explain. | 5 |
| b) Explain the differences between SOAP and REST. | 5 |
| 17. a) Explain the life cycle of Servlet. | 6 |
| b) Explain UDDI Data structures. | 4 |