FACULTY OF ENGINEERING
B.E. (CIVIL) III–Semester (CBCS) (Main & Backlog) Examination, November / December 2018

Subject: Surveying – I

**Time: 3 Hours**   **Max. Marks: 70**

Note: Answer all questions from part - A and any five questions from part - B.

PAR –A (20 Marks)

1. Define surveying. What are the principles of surveying? Explain them briefly.   2
2. Differentiate between the following terms.
   (i) Base line   (ii) Check line.   2
3. What are the advantages and disadvantages of compass survey?   2
4. Differentiate between the following
   (i) Bearing and azimuth   (ii) Magnetic and true meridians   2
5. What are the various methods of plane tabling? Explain them briefly.   2
6. What are the various methods of resection? Explain resection by back sighting.   2
7. Define the terms line of collimation, height of instrument, back sight, reduced level, and parallax.   2
8. Describe in detail the processes of profile leveling.   2
9. Define a contour. State the various characteristics of contour lines.   2
10. What are the various methods of interpolating contours? State the suitability of each one of them.   2

PART – B (5×10=50 Marks)

11. a) Describe the instrument *Optical square with a neat sketch*.   5

    b) A big pond obstructs the chain line AB as shown in a line AL was measured on the left of the line AB for circumventing the obstacle. The length of AL was 901m. Similarly, the line AM was measured on the right of the line AB whose length was 1100m. Points M, B and L are in the same straight line. Lengths of the links BL and BM are 502m and 548m, respectively. Find the distance AB.
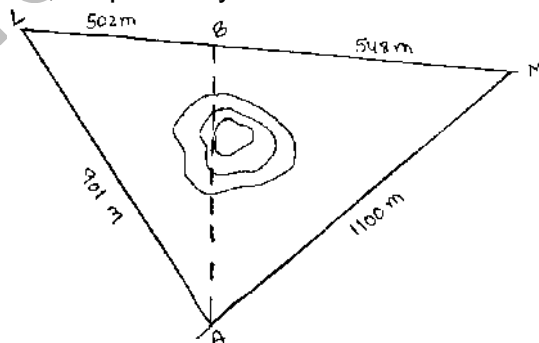
12. Give the corrected bearings of the following traverse taken from a compass survey.

Line	Fore Bearing	Back Bearing
AB	191°30'	13°00'
BC	69°30'	246°30'
CD	32°15'	210°30'
DE	262°45'	80°45'
EA	230°15'	53°00'

…2

13. a) State the two-point problem. How is it solved?   6
    b) State the factors influencing the size of the triangle of error.   4

14. a) Explain how the procedure of reciprocal leveling eliminates the effect of refraction
       and curvature as well as the error of collimation?   4
    b) The following consecutive readings were taken with a dumpy level and 4m leveling
       staff on a continuously sloping ground at 30m intervals,
       0.680, 1.455, 1.855, 2.330, 2.885, 3.380, 1.055, 1.860, 2.265, 3.540, 0.835, 0.945, 1.530,
       and 2.250.The R.L. of starting point was 80.750m.
       (a) Rule out a page of the level book and enter the above readings.   6
       (b) Carry out reduction of heights by the collimation method and apply the usual
            checks.
       (c) Determine the gradient of the line joining the first and last points.   6

15. a) State and prove the Trapezoidal rule   4
    b) A series of perpendicular offsets were taken from a survey line to a curved
       boundary.   6

Distance (m)	0	10	20	30	40	50	60	70
Offset (m)	2.2	2.6	0.85	1.24	2.05	1.66	1.00	0.84

16. a) The following observations were taken from a survey line to a curved boundary.   6

Instrument at	Staff reading at	
	A	B
A	1.275	2.005
B	1.040	1.660

    Is the instrument in adjustment? To what reading should the line of collimation be
    adjusted when the instrument is at B.
    b) Discuss briefly the effect of curvature and refraction in leveling. Derive an expression
       for curvature correction and for combined curvature and refraction correction.   5

17. Answer any two questions:
    a) Explain in a tabular form the difference between a prismatic compass and a surveyor
       compass.   5
    b) Write temporary adjustments of a dumpy level in detail.   5
    c) Derive an expression for the trapezoidal formula for volumes.   5

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FACULTY OF ENGINEERING

B.E. (EE/Inst./M/P/CSE) III - Semester (Main & Backlog) Examination, November / December 2018

Subject: Environmental Studies

Time: 3 Hours   Max. Marks: 70

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

PART A (20 Marks)

1	Discuss the causes, effects and control measures of Floods.	2
2	Write a note on threats to biodiversity.	2
3	What are the effects of carbon monoxide on human health?	2
4	What do you know about Watershed Management?	2
5	What is Ex Situ Conservation?	2
6	Write a note on Estuary Ecosystem.	2
7	What are different types of soil erosion?	2
8	Explain Water Logging and Salinity.	2
9	Write a short note on Acid Rain.	2
10	Write a short note on disaster types.	2

PART B (5X10=50 Marks)

11 (a) Explain the benefits and problems of dams.   4
   (b) Write a detail note on Ecological Pyramids.   6

12 (a) Define Biodiversity and explain why we have to conserve Biodiversity.   5
   (b) Write a short note on Land Resources and the reasons for land degradation.   5

13 (a) Define environmental studies and write why there is a need to make public
       awareness about this.   5
   (b) Write a note on Disaster Management Cycle with neat sketch.   5

14 (a) Explain structure and functions of Pond Ecosystem.   5
   (b) What is meant by alternative energy resource? Explain it with different
       examples?   5

15 (a) Define Water Pollution and write about the causes, effects and control measures
       of it.   6
   (b) Discuss about Wild Life Protection Act.   4

16 (a) Explain ill impacts of modern agriculture on human health and environment.   5
   (b) Why India is considered a nation with major biodiversity?   5

17 (a) What are the risks and problems associated with Solid Waste. Write any two
       methods to solve waste problems?   5
   (b) Write short note on: 5
        i. Eutrophication
        ii. Cyclone separator.

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FACULTY OF ENGINEERING
B.E. 2/4 (Civil/ECE/AE/CSE) II – Semester (Backlog) Examination, November / December 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. What do you understand by Landslide.   (2)
2. State the need for public awareness towards environment and its effects. (3)
3. What is the effect on energy in a food chain or a food web ?   (3)
4. Define the terms: biotic and abiotic components.   (2)
5. State significance of Genetic and Species Diversity.   (3)
6. List out any six endemic species of India.   (2)
7. Enumerate the causes for Noise Pollution.   (3)
8. State the objectives of water pollution act.   (3)
9. Give the classification of disasters.   (2)
10. Enumerate the consequences of Acid rans.   (2)

PART- B (50 Marks)

11. a) Enumerate the various Uses and Abuses of Surface and
        Groundwater Resources.   (5)
    b) What do you understand by Salinity ? Explain the reasons for its (5)
        occurrence.

12. a) Explain in detail about Carbon and Sulphur bio-geochemical
        cycles with neat sketches.   (5)
    b) Discuss in brief the structure and components of aquatic ecosystem. (5)

13. a) Describe about the reasons and benefits of conservation of biodiversity.(4)
    b) Explain detail various threats towards Biodiversity.   (6)

14. a) Discuss in detail the functions of state and central pollution control
        boards.   (6)
    b) Enumerate the causes and effects of thermal pollution.   (4)

15. a) Explain the importance of Disaster Management and its basic
        Principles.   (4)
    b) Define Climate Change along with the external and internal causes
        of the same.   (6)

16. a) Explain in detail any one water conflict along with its amendments. (5)
    b) State the various measures taken towards effective solid waste
        management.   (5)

17.   Write short notes on the following.   (5x2=10)
    a) Enforcement of environmental legislation.
    b) Salient features Forest and Wild life protection act.

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FACULTY OF ENGINEERING

B.E. 2/4 (EEE) II-semester (Backlog) Examination, November /December 2018
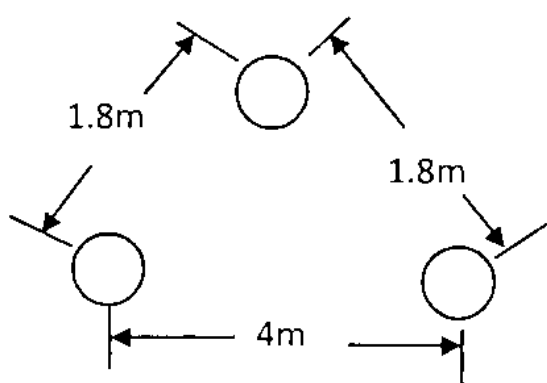
Subject : Power Systems - I

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

Note: Answer all questions from part –A and any five from Part-B

Part-A (25 Marks)

1. What is skin effect? Explain   3

2. List the different types of tariff   3

3. Write the various methods of improving string efficiency   2

4. Explain why transposition of lines is done   2

5. A power station has a maximum demand of 15000kW. The annual load factor is 50% and plant capacity factor is 40% Determine the reserve capacity of the plant   3

6. Define the terms depreciation and diversity factor   2

7. What are the disadvantages of low power factor?   3

8. What is the function of nuclear reactor?   2

9. Give the advantages of high transmission voltage   2

10. Determine the inductance of 3-phase line operating at 50 Hz arranged in the form given below. The conductor diameter is 0.8cm   3

Part-B (50 Marks)

11. Explain with the neat schematic diagram the various parts of steam power station   10

12. Each line of a 3-phase system is suspended by a string of 3 similar insulators. If the voltage across the line unit is 17.5Kv, calculate the line to neutral voltage. Assume that the shunt capacitance between each insulator and earth is $1/8^{th}$ of the capacitance of the insulator itself. Also finds the string efficiency   10

13 A transmission tower on a level ground gives a minimum clearance of 8 mts for its lowest conductor with a sag of 10mts for a span of 300mts., If the same tower is to be used over a slope of 1 in 15, find the minimum ground clearance obtained for the same span same conductor and same weather conditions   10

14 A generating station has the following daily load cycle

Time (Hours)	0-6	6-10	10-12	12-16	16-20	20-24
Load (MW)	40	50	60	50	70	40

Draw the load curve and find (i) Maximum demand (ii) Units generated per day
(iii) Average load (iv) Load factor & (v) Diversity factor   10

15 A 66-kV single core lead sheathed cable is graded by using two dielectrics of relative permittivity 5 and 3 respectively; thickness of each being 1 cm. The core diameter is 2 cm. Determine the maximum stress in the two dielectrics   10

16 An electric train runs between two substations 10km apart maintained at voltages 660V and 500V respectively and draws a constant current of 333A while in motion The track resistance of go and return path is 0.04/km. Calculate
    (i) The point along the track where minimum potential occurs
    (ii) The current supplied by the two substations when the train is at the point of minimum potential   10

17 Derive expression for three phase unsymmetrical spaced transmission line Inductance   10

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

Subject: Thermodynamics & Fluid Mechanics

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

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

1. Explain the concept of internal energy? How it is related to first low of thermodynamics?
2. List out applications to closed and open systems.
3. Write short notes on effect of clearance volume in reciprocating air compressors
4. What is inter-cooling in two stage compressors? Sketch P-V diagram showing with and without inter cooling.
5. Define dynamic and kinematic viscosity
6. Differentiate between steady and un-steady flow?
7. List out flow measuring devices
8. Explain coefficient of discharge
9. What do you understand by dynamic similarity
10. What is Hagen Poiseuille equation?

Part-B(5 X 10 =50 Marks)

11. A 40cylinder two stroke cycle petrol engine develops 30 kW at 2500 rpm. The mean effective pressure on each piston is 8 bar and mechanical efficiency is 80%. Calculate the diameter and stroke of each cylinder of stroke to bore ratio 1.5. Also calculate the fuel consumption of the engine, if brake thermal efficiency is 28%. The calorific value of the fuel is 43900 kJ/kg.

12. Steam with absolute velocity of 300 m/s is supplied through a nozzle to a single stage impulse turbine, the nozzle angle is 25°. The mean diameter of blade rotor is 1 m and it has a speed of 2000 rpm. Find suitable blade angle for zero axial thrust. If the blade velocity co-efficient is 0.9 and steam entering flow rate is 10 kg/s. Calculate the power developed.

13 a) Determine the viscosity of a liquid having kinematic viscosity 6 stokes and specific gravity 1.9
   b) Classify types of fluid flow. Explain any four in detail.

14 a) Derive Euler's equation of motion. State its assumptions
   b) State impulse momentum equation. Explain the force exerted by a flowing fluid on a 45° pipe bend.

15 a) Explain the concept of friction losses in pipes?
   b) Explain the significance of Reynolds number? Correlate with different types of flow.

16 a) With a P-V diagram, explain the working of multi-stage compressor.
   b) How does an open cycle gas turbine differ from a closed cycle gas turbine? State five points highlighting the difference.

17 a) A compare two stroke and four stroke cycle engines
   b) Differentiate between laminar and turbulent flow.
   c) Methods of improving thermal efficiency of a gas turbine.

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FACULTY OF ENGINEERING

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

Subject : Thermo Dynamics

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

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

PART – A (25 Marks)

1. Distinguish between Intensive and extensive properties with examples.
2. Explain Quasi-Static process.
3. What is thermodynamic work ? Mention various types.
4. State first law of thermodynamics for a change of state and also for a cycle.
5. What is the qualitative difference between heat and work ? Why heat and work are not completely interchangeable from of energy ?
6. What do you mean by available energy unavailable energy and a dead state ?
7. What is pure substance ? Can air be treated as pure substance ?
8. Define dryness faction.
9, Represent dual cycle with T-s diagram.
10. Explain Amagal-leduc Law of Partial Volumes

PART-'B'(50 Marks)

11. a) Explain Thermodynamic equilibrium ?　　　　　　　　　　　　　　　(3)
　　b) Describe the working principle of a constant pressure gas thermometer with neat sketch.　　　　　　　　　　　　　　　　　　　　　　　　(7)

12. $2m^3$ of hydrogen at pressure of 1 bar and 20^0c is compressed isentropically to 4 bar. The same gas is expanded isothermally and restored to initial state by constant volume heat rejection process. Determine : (i) Pressure, Volume and temperature at each end of process (ii) The heat added during the isothermal process (iii) the heat rejected during constant valume and (iv) change in internal energy during each process Assume $R=4.20$ Kj/Kg k $Cp=14.25$ Kj/Kg k.　　　　　　　　　　(10)

13. a) What is steady flow process ? Simplify SFEE for (i) Air Compressor and (ii) Boiler.(4
　　b) State and prove Carnot theorem ?

14. a) Explain Helmholtz and Gibbs Function. Mention their applications.　　(4)
　　b) A reversible heat engine receives heat from two thermal reservoirs maintained at constant temperature of 750 K and 500 K. The engine develops 100 kw and rejects 3600 kj/min of heat to a heat sink of 250 k. Determine thermal efficiency of the engine and heat supplied by each thermal reservoir ?　　　　　　　(6)

15. a) Find out the state of steam l.c Whether it is wet, dry or superheated for the following cases (i) Steam at a pressure of 15 br and specific value of 0.12 m^3/kg (ii) steam at a pressure of 10 bar and temperature of 200^0c (iii) Steam at a pressure of 30 bar and if 2700 Kj/Kg of heat required to generate steam.　　　　　　　　　　(5)
　　b) Derive Maxell's second and fourth equation.　　　　　　　　　　　(5)

16. a) Explain the construction of Mollier diagram for steam ?　　　　　　(4)
　　b) Volumetric analysis of a Flue gas is 12% CO_2, 4% CO, 4% 0_2 and 80% N_2 (by differance) calculate the gravimetric composition.　　　　　　　(6)

17. a) Derive an expression for the air standard efficiency of and alto cycle.　　(7)
　　b) A car has Diesel engine with compression ratio 20:1 and Expansion ratio of 10:1 calculate (i) Cut-off ratio and (ii) air standard efficiency ?　　　(3)

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FACULTY OF ENGINEERING

B.E. 2/4 (I.T) II-Semester (Backlog) Examination, November / December 2018

Subject : Web Technologies

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

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

PART-A (25 Marks)

1 Define a cookie.	2
2 Describe three major differences between Java and Javascript.	3
3 List the different list tags in HTML.	3
4 State the purpose of XML?	2
5 List the differences between HTML and XHTML.	3
6 Explain the differences between SOAP and REST.	2
7 List the XML parsers.	2
8 List the different JSP elements.	3
9 List the different web form controls in ASP.NET	3
10 Define UDDI.	2

PART-B (50 Marks)

11. a) List the different types of Selectors in CSS.   4
     b) What is cascading style sheet and explain different levels of style sheets?   6

12. a) Write a DTD for the XML document which has the employee details with the following fields–empid, emp-name, designation and address. Assume values for each field.   7
     b) List the differences between DTD and XML schema.   3

13. a) Explain the life cycle of servlet.   6
     b) List the differences between servlets and JSP's?   4

14. a) Describe the different ways to handle exceptions in JSP.   3
     b) Write a Servlet program to handle form data.   7

15. a) What is AJAX? Mention the languages supported by ASP.NET   5
     b) Explain the different validation controls that are used in ASP.NET   5

16. a) What are the different action tags used in JSP?   4
     b) Write a JSP program to find the factorial of a given number.   6

17. a) Explain the structure of WSDL document.   6
     b) Describe the general structure of SOAP message.   4

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