

**APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY**  
THIRD SEMESTER B.TECH DEGREE EXAMINATION, DECEMBER 2018

**Course Code: CE201**  
**Course Name: MECHANICS OF SOLIDS**

Max. Marks: 100

Duration: 3 Hours

**PART A**

*Answer any two full questions, each carries 15 marks.*

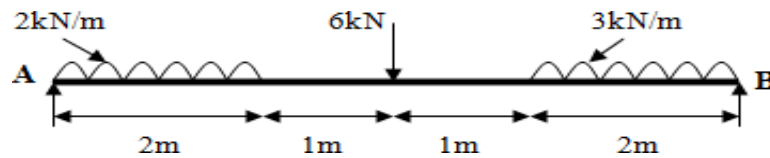
Marks

- |   |  |     |
|---|--|-----|
| 1 | a) Define the following terms: (i) Modulus of Rigidity (ii) Proof Resilience (iii) Factor of safety. (3)   | (3) |
|   | b) The maximum instantaneous extension, produced by an unknown falling weight through a height of 4 cm in a vertical bar of length 3 m and of cross sectional area $5 \text{ cm}^2$ , is 2.1 mm. Determine (a) the instantaneous stress induced in the vertical bar, and (b) the value of unknown weight. Take $E = 2 \times 10^5 \text{ N/mm}^2$ (8)  | (8) |
|   | c) Derive the relation between Modulus of elasticity and Bulk Modulus. (4)   | (4) |
| 2 | a) Write down the expression for elongation of tapering bars of (i) circular cross section (ii) rectangular cross section (4)  | (4) |
|   | b) A steel rod of 3 cm diameter and 5 m length is connected to two grips and the rod is maintained at a temperature of $95^\circ\text{C}$ . Determine the stresses and pull exerted when the temperature falls to $30^\circ\text{C}$ if (i) the ends do not yield and (ii) the ends yield by 0.12 cm. Take $E = 2 \times 10^5 \text{ N/mm}^2$ and $\alpha = 12 \times 10^{-6} / ^\circ\text{C}$ . (7)  | (7) |
|   | c) A cylindrical bar with two sections of lengths 50cm and 25cm, and diameters 20mm and 15mm respectively is subjected to an axial pull such that the maximum stress is $150 \text{ MN/m}^2$ . Calculate the strain energy stored in the bar. $E = 200 \text{ GN/m}^2$ (4)   | (4) |
| 3 | a) When a copper wire of length 2 m and diameter 40 mm is subjected to an axial pull of 80 kN, its diameter reduces by 0.00775 mm. The modulus of elasticity of copper is 105 GPa, calculate the extension of the wire, Poisson's ratio and modulus of rigidity of the material. (6)   | (6) |
|   | b) A compound tube consists of a steel tube 140 mm internal diameter and 160mm external diameter and an outer brass tube 160 mm internal diameter and 180 mm external diameter. The length of the compound tube is 150 mm and it carries an axial load of 900 kN. Find the stresses and load carried by each tube and the amount it shortens. Take $E_{\text{steel}} = 2 \times 10^5 \text{ N/mm}^2$ and $E_{\text{brass}} = 1.1 \times 10^5 \text{ N/mm}^2$ . (9) | (9) |

**PART B**

*Answer any two full questions, each carries 15 marks.*

- |   |   |      |
|---|---|------|
| 4 | a) A cantilever beam of span L, fixed at the left end, carries a clockwise moment M at its centre and a point load at the free end. Draw the SFD and BMD (5)    | (5)  |
|   | b) Draw the shear force and bending moment diagram of the simply supported beam AB shown below. Mark the salient values. Also find maximum bending moment. (10) | (10) |



- 5 a) Define point of contra flexure and section modulus. (5)  
 b) A beam ABCD 12 m long carries a uniformly distributed load of 25kN/m. It is simply supported at A and C 10 m apart with an overhang CD of 2m. It also carries a clockwise couple of 100 kNm at B, 3 m from A. State the position and amount of maximum BM. Sketch the SFD and BMD (10)
- 6 a) What are beams of uniform strength? (5)  
 b) A cast iron beam of triangular section of 100 mm width and 100 mm depth is placed with its base horizontal. The beam is simply supported over a span of 6 m. If the allowable stress in tension and compression are 50 MPa and 150 MPa respectively, find the safe concentrated load at the centre of the beam. What are the extreme fibre stresses? (10)

### PART C

*Answer any two full questions, each carries 20 marks.*

- 7 a) Derive the expression for normal stress on a plane inclined at an angle  $\theta$  to x axis and subjected to normal stresses in X and Y directions. (6)  
 b) Show that in thin cylinders, the circumferential stress is twice the longitudinal stress when subjected to internal pressure. (6)  
 c) Determine the maximum power transmitted at 280 rpm by a steel shaft of 35 mm internal diameter and 4.5 mm thick, if the allowable stress is 75 MPa and the angle of twist is not to exceed  $1^\circ$  in a length of 1.5 m. Assume  $G=80$  GPa for the material. (8)
- 8 a) At a point in a stressed material, the normal stress on a plane is  $50 \text{ N/mm}^2$  (T) and a normal stress of  $30 \text{ N/mm}^2$  (C) is acting on the plane perpendicular to the given plane. The shear stress acting on these planes is  $25 \text{ N/mm}^2$ . Determine the principal stresses and their planes using Mohr's circle. Also determine the maximum shear stress at that point. (10)  
 b) Differentiate Macaulay's method, double integration method and moment area method in computation of slope and deflection in beams (4)  
 c) A steel column made of a 4 m long hollow circular section, having 300 mm internal diameter and 20 mm thick, is fixed at both the ends. Determine the safe axial load the column can carry with a factor of safety 3.5 using Euler's formula.  $E=2.1 \times 10^5 \text{ N/mm}^2$  (6)
- 9 a) Define i) slenderness ratio ii) Kern of a circular section (5)  
 b) State the various stresses acting at a point in a thick cylinder with closed ends subjected to internal pressure. Write down the Lamé's equations detailing the various terms. (5)  
 c) Find the maximum deflection and slope at the supports of a simply supported beam of span 6 m and carrying a udl of 2 kN/m over the left half of the span. Assume  $EI = 4 \times 10^{12} \text{ Nmm}^2$  (10)

\*\*\*\*

Reg No.: \_\_\_\_\_

Name: \_\_\_\_\_

**APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY**  
**THIRD SEMESTER B.TECH DEGREE EXAMINATION, DECEMBER 2018**

**Course Code: CE203**

**Course Name: FLUID MECHANICS – I (CE)**

Max. Marks: 100

Duration: 3 Hours

**PART A**

*Answer any two full questions, each carries 15 marks.*

Marks

- |   |  |      |
|---|--|------|
| 1 | a) Define the terms gauge pressure, vacuum pressure and absolute pressure. Indicate their relative positions on a chart. (5)   | (5)  |
|   | b) A cubical tank has sides of 1.5 m. It contains water in the lower 0.6 m depth. The upper remaining portion is filled with oil of relative density 0.9. Calculate for one vertical side of the tank (i) the pressure force and (ii) position of the centre of pressure. (10) | (10) |
| 2 | a) A solid cylinder of diameter 30 cm and height 15 cm is to float in in water with its axis vertical in sea water (specific gravity 1.03). If the relative density of the cylinder material is 0.9, examine the stability of cylinder. (9)                                    | (9)  |
|   | b) Derive the continuity equation for one dimensional flow. (6)  | (6)  |
| 3 | a) Differentiate between forced vortex flow and free vortex flow (4)   | (4)  |
|   | b) A velocity field is given by $u = t^2 + 3y$ and $v = 4t + 5x$ . Calculate the acceleration at the point (5, 3) at time $t = 2$ units. (7)   | (7)  |
|   | c) Distinguish between: (4)  | (4)  |
|   | (i) rotational flow and irrotational flow.   |      |
|   | (ii) streamline and path-line.   |      |

**PART B**

*Answer any two full questions, each carries 15 marks.*

- |   |  |      |
|---|--|------|
| 4 | a) A bend in pipeline conveying water gradually reduces from 0.6 m to 0.3 m diameter and deflects the flow through $60^\circ$ in the anticlockwise direction. At the larger end the gauge pressure is $171.675 \text{ kN/m}^2$ . Determine the magnitude and direction of the force exerted on the bend when the flow is 876 litres/s. The pipe is lying on a horizontal plane. Neglect the losses in the bend. (12) | (12) |
|   | b) Define kinetic energy correction factor. (3)  | (3)  |
| 5 | a) A 40 metres long weir is divided into 12 equal bays by vertical posts, each 0.6 m wide. Taking $C_d = 0.623$ , calculate the discharge over the weir if the head over the crest is 1.20 m and velocity of approach is 2 m/s. (7)  | (7)  |
|   | b) A reservoir discharges through a sluice 0.915 m wide and 1.22 m deep. The top of the opening is 0.61 m below the water level in the reservoir and the downstream water level is below the bottom of the opening. Calculate (8)  | (8)  |
|   | (i) discharge through the opening if $C_d=0.6$   |      |
|   | (ii) the percentage error if the opening is treated as a small orifice   |      |

- 6 a) A venturimeter 30 cm x 10 cm is provided in a vertical pipeline to measure the flow of oil of relative density 0.85. The difference in elevations of the throat section and entrance section is 40 cm, the direction of flow of oil being vertically upwards. The oil-mercury differential U tube manometer shows a gauge deflection of 20 cm. Calculate the discharge of oil and the pressure difference between the entrance section and throat section. Take the coefficient of discharge as 0.97 and specific gravity of mercury as 13.6. (10)
- b) Define coefficient of velocity, coefficient of contraction and coefficient of discharge. Find out the relation among the three. (5)

### PART C

*Answer any two full questions, each carries 20 marks.*

- 7 a) Derive the Hagen –Poiseuille equation for laminar flow in circular pipes. (10)
- b) A horizontal pipe carrying water suddenly increases its diameter from 10 cm to 20cm. Find out the loss of head due to sudden increase in diameter if the discharge through the pipe is 150 litres/s. Also find out the pressure difference between the two sections. (6)
- c) Define Hydraulic Grade Line and Total Energy Line. (4)
- 8 a) The velocity distribution in the boundary layer is given by:  $\frac{v}{V} = \frac{3}{2}\eta - \frac{1}{2}\eta^3$  (10)  
where  $v$  is the velocity at a distance  $y$  from the plate,  $\eta = \frac{y}{\delta}$  and  $v = V$  at  $y = \delta$ ,  $\delta$  being the boundary layer thickness. Find the displacement thickness and the momentum thickness in terms of  $\delta$
- b) Differentiate between friction drag and pressure drag (4)
- c) What are the factors affecting the boundary layer thickness along a flat plate? (6)
- 9 a) A 0.3 m diameter pipe 2340 m long is connected with a reservoir whose surface is 72 m above the discharging end of the pipe. If for the last 1170 m, a second pipe of the same diameter is laid beside the first and connected to it, what would be the increase in discharge? Neglect minor losses. Take  $f=0.02$ . (10)
- b) Oil of specific gravity 0.85 and viscosity 2.5 Poise is flowing through a 30cm diameter pipe kept horizontally. The length of pipe is 2.5 km and the head loss is 20 m. If the flow is laminar, estimate (i) shear stress at the pipe wall (ii) shear stress at a radial distance of 10 cm from the pipe axis and (i) the friction factor  $f$ . (10)

\*\*\*\*

Reg No.: \_\_\_\_\_

Name: \_\_\_\_\_

**APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY**  
**THIRD SEMESTER B.TECH DEGREE EXAMINATION(S), MAY 2019**

**Course Code: CE205**

**Course Name: ENGINEERING GEOLOGY**

Max. Marks: 100

Duration: 3 Hours

**PART A**

*Answer any two full questions, each carries 15 marks.*

- |   |   | Marks |
|---|---|-------|
| 1 | a) Define weathering of rocks. Explain the weathering by mechanical means.          | (7)   |
|   | b) Describe any two laboratory test used for assessing intensity of weathering.     | (4)   |
|   | c) Sketch the typical soil profile with a short description of each zone.           | (4)   |
| 2 | a) Define aquifer. Discuss the classification of aquifers.                          | (5)   |
|   | b) Relate porosity and permeability in aquifers.                                    | (5)   |
|   | c) Explain any three methods to control sub-surface water during the constructions. | (5)   |
| 3 | a) Elucidate any three geological classes of soils                                  | (9)   |
|   | b) Explain the relevance of geology in construction engineering.                    | (6)   |

**PART B**

*Answer any two full questions, each carries 15 marks.*

- |   |   |     |
|---|---|-----|
| 4 | a) Describe any three physical properties which affect the strength of minerals.                    | (6) |
|   | b) Explain: (i) Calcite (ii) Biotite (iii) Gypsum   | (9) |
| 5 | a) Give an account of any two rock features that affect the strength of rock as foundation material | (6) |
|   | b) Discuss the origin of igneous rocks and sedimentary rocks  | (9) |
| 6 | a) How do earthquake waves help to understand the interior structure of earth?                      | (6) |
|   | b) Write short notes on: (i) Basalt (ii) Marble   | (9) |

**PART C**

*Answer any two full questions, each carries 20 marks.*

- |   |  |     |
|---|--|-----|
| 7 | a) Explain strike and dip with figures   | (6) |
|   | b) Describe any two geological factors considered essential in the construction of tunnels   | (8) |
|   | c) How are folds formed in rock? Discuss the significance of fold in selecting feasible sites for dam.   | (6) |
| 8 | a) The dip amount and dip direction of two outcrop of a contact between limestone and sandstone, located at a distance of 500m apart, are $20^{\circ}/N150^{\circ}$ and $21^{\circ}/N330^{\circ}$ . Identify the structure and its strike. | (5) |

- b) What are contours? Draw a contour pattern ( not on scale) representing a 60m high volcanic cone, with a dry crater of 25m deep, located along sea shore ( use contour interval – 20m) (3)
- c) List the causes of soil erosion (12)
- 9 a) What are faults? Describe the parts of a fault with diagram. How do faults differ from joints (10)
- b) Describe any three types of mass wasting. (6)
- c) Discuss the causes of landslides in Kerala (4)

\*\*\*\*

Reg. No. \_\_\_\_\_

Name: \_\_\_\_\_

**APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY**  
**THIRD SEMESTER B.TECH DEGREE EXAMINATION, JULY 2017**

Course Code: **CE 207**Course Name: **SURVEYING (CE)**

Max. Marks: 100

Duration: 3 Hours

**PART A***Answer Any Two Full Questions.*

1. (a) Write the primary classification of survey and distinguish between them. (3.5)  
 (b) What is a well conditioned triangle? Why is it preferred in surveying? Examine whether a triangle having sides 80m,60m and 40m is a well conditioned triangle or not. (4)  
 (c) Explain how reciprocal levelling eliminates the effect of atmospheric refraction and earth's curvature. (4)  
 (d) A level is set up at O on a line AB 50m from A and 1400m from B. The staff reading on A is 0.585 m and that on B is 3.695 m. Find the true level difference between A and B. (3.5)
2. (a) Explain the term Ranging of a line. Describe how you would range a chain line between two points which are not intervisible. (7.5)  
 (b) The following readings refer to reciprocal levels taken with one level.

| Instrument Near | Staff Reading on<br>(metres) |       | Remarks           |
|-----------------|------------------------------|-------|-------------------|
|                 | P                            | Q     |                   |
| P               | 1.825                        | 2.745 | Distance PQ=1010m |
| Q               | 0.925                        | 1.605 | RL of P =126.36   |

Find i) the true RL of Q ii) Combined Correction for curvature and refraction. (7.5)

3. (a) The following bearings were taken in running a compass survey.

| Line | Fore Bearing | Back bearing |
|------|--------------|--------------|
| AB   | 124°30'      | 304°30'      |
| BC   | 68°15'       | 246°0'       |
| CD   | 310°30'      | 135°15'      |
| DA   | 200°15'      | 174°45'      |

At what stations do you suspect local attraction? Find the correct bearings of the lines and also compute the included angle. (7.5)

- (b) Define i) Contour ii) contour Interval iii) Contour Gradient iv) Horizontal Equivalent. (4)
- (c) Explain the factors affecting the choice of contour interval. (3.5)

### PART B

*Answer any Two Full questions.*

4. (a) Volume of earth work is to be calculated for a railway embankment 12m wide with side slope 1.5:1. Assuming the ground to be level in a direction transverse to the centre line, calculate the volume contained in a 180m length, the centre heights at 30m intervals in meters as 0.70,1.20,1.75,1.45,1.20,0.95,0.65 using a) prismatic rule and b) trapezoidal rule. (7.5)
- (b) Explain the steps in ascertaining the intervisibility between triangulation stations. (7.5)
5. (a) What is meant by eccentricity of signal? How would you correct the observation when made upon an eccentric signal? (7.5)
- (b) The following table gives the latitudes and departures in metres of the sides of a closed traverse ABCDEA

| Side | Latitude |      | Departure |       |
|------|----------|------|-----------|-------|
|      | N        | S    | E         | W     |
| AB   | 2.28     |      |           | 13.80 |
| BC   | 7.55     |      | 2.70      |       |
| CD   |          | 2.37 | 7.50      |       |
| DE   | 1.23     |      | 5.40      |       |
| EA   |          | 8.69 |           | 1.80  |

Calculate the area of the traverse by latitude and meridian distance method and latitude and double meridian distance method. (7.5)

6. (a) Define the following terms:
- i) Mass haul diagram ii) free haul and over haul iii) Lead and lift. (7.5)

(b) Two triangulation stations A and B are 70km apart and have elevations 250m and 290m respectively. Find the minimum height of signal required at B so that line of sight may not pass near the ground than 2 metres. The intervening ground may be assumed to have a uniform elevation of 200m. (7.5)

### PART C



*Answer any Two Full Questions.*

7. (a) the following are the observed values of an angle:

| Angle     | Weight |
|-----------|--------|
| 50°20'20" | 2      |
| 50°20'22" | 2      |
| 50°20'19" | 3      |

Find i) Probable error of single observation of unit weight.

ii) Probable error of weighted arithmetic mean.

iii) Probable error of single observation of weight 3. (10)

- (b) Explain the following terms

i) Celestial sphere, ii) Zenith and Nadir iii) Observer's Meridian

iv) Hour Circle and Hour angle v) Declination and Polar distance (10)

8. (a) Form the normal equations for x, y and z in the following equations of equal weight.

$$4x+3y+z = 4$$

$$x+3y+2z=6$$

$$4x+y+4z=22$$

If the weights of the above equations are 2,3 and 1 respectively, form the normal equations for x,y,z. (10)

- (b) What is meant by modulation? Explain the different methods of modulation with examples of EDM instruments that use these modulation methods. (10)

9. (a) The following observations of three angles A, B, C were taken at one station A=

83°24'6.8" with weight 3

B=55°09'54.2" with weight 2

C= 110°09'28.9" with weight 2

A+B= 138°34'3" with weight 2

B+C = 165°19'22.1" with weight 1

A+B+C= 248°43'30.9" with weight 1

Determine the most probable value of each angle by method of differences.

(10)

- (b) Explain the steps to be followed for the set up of a total station over a point during field work.

(10)

\*\*\*\*\*

Reg No.: \_\_\_\_\_

Name: \_\_\_\_\_

**APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY**  
THIRD/FOURTH SEMESTER B.TECH DEGREE EXAMINATION, DECEMBER 2018

**Course Code: HS200**  
**Course Name: BUSINESS ECONOMICS**

Max. Marks: 100

Duration: 3 Hours

**PART A**

*Answer any three questions, each carries 10 marks.*

- |   |   | Marks |
|---|---|-------|
| 1 | a) With the help of a figure demonstrate the relationship between total and marginal utility.   | (5)   |
|   | b) Marginal analysis is the basis for several theories in Business Economics. Do you support this view?   | (5)   |
| 2 | a) Mention the relevance of the concept of scarcity in business economics.  | (5)   |
|   | b) Mark the point on a graph of the PPC, showing underutilization of resources. Using the PPC, explain the concept of trade off.  | (5)   |
| 3 | a) If the production function of a firm is $Q = 10 L^{1/2} K^{1/2}$ , find out the maximum output that can be produced, if 144 units of labour is combined with 169 units of capital. Also calculate the average and marginal product of labour from the function | (5)   |
|   | b) In July, Parle sold 40,000 bottles of their mango juice when the price of Tropicana was Rs.35 per bottle. In August, they sold 45,000 bottles when the price of Tropicana was Rs.40. Calculate the cross elasticity of demand of mango juice for Parle.        | (5)   |
| 4 | a) State and explain the law of variable proportions  | (4)   |
|   | b) The following schedule shows the number of laptops purchased by offices and homes at different market prices.  |       |

| Price(Rs) | purchased by offices(units) | Purchased by homes(units) |
|-----------|-----------------------------|---------------------------|
| 50000     | 3400                        | 2500                      |
| 55000     | 3300                        | 2100                      |
| 60000     | 3200                        | 1600                      |
| 65000     | 3100                        | 1200                      |

(6)

As the price of laptops increases from 55000 to 60000, what is the price elasticity of demand for (i) offices and (ii) homes?

**PART B**

*Answer any three questions, each carries 10 marks.*

- |   |   |     |
|---|---|-----|
| 5 | a) Define average and marginal revenue. With the help of a figure demonstrate the relationship between average and marginal revenue.  | (6) |
|   | b) Distinguish between Perfect Competition and Monopoly.  | (4) |
| 6 | a) Draw a diagram showing AFC, AVC and TC curves.   | (4) |
|   | b) A small-scale company, engaged in the production of manufacturing biodegradable carry bags has total sales of Rs. 20000. Its fixed cost is Rs. 6000, while its variable cost is at Rs.12000. Calculate (i) the P/V ratio (ii) breakeven point (iii) Margin of safety at this level of sales (iv) If it sells each bag for Rs.5, how many bags should the company sell to break even? (v) Find out the sales required to earn a profit of Rs. 4000. | (6) |
| 7 | a) Examine the various phases of a trade cycle. Draw a neat diagram to substantiate   | (5) |

- your view.
- b) Define GNP, NNP, NI, PI and DPI. (5)
- 8 a) Examine the various functions of the Reserve Bank of India. (5)
- b) A mobile manufacturing company makes Rs.100000 every day by selling them. (5)  
During this time, the machinery of the company depreciates by 10000. The company pays GST of Rs.6000, gives the owner Rs. 40000 and retains Rs. 44000 for its expansion activities. The owner pays Rs. 45000 as income tax from his income. Compute the firm's contribution to the following measures of national income. (i) GDP (ii) NDP (iii) NI (iv) Personal income (v) Disposable Personal income.

### PART C

*Answer any four questions, each carries 10 marks.*

- 9 a) What is Capital budgeting? (4)
- b) The following table gives the annual sales and cost for two machines, which a company is planning to purchase. Machine A costs 2,60,000 while machine B costs Rs. 90,000. (6)

|               | Machine A | Machine B |
|---------------|-----------|-----------|
| Sales         | 1,70,000  | 1,70,000  |
| Raw Materials | 60,000    | 60,000    |
| Labour        | 15,000    | 60,000    |
| Electricity   | 30,000    | 20,000    |

- Use the payback method to determine which machine the company should buy?
- 10 a) Define payback period and average rate of return. (4)
- b) Examine the various sources of capital for a business firm. (6)
- 11 a) What is cost benefit analysis? Mention the difficulties encountered while carrying out this analysis. (4)
- b) A project has been started by a company with an initial investment of Rs.10,00,000. The company gets a cash inflow of Rs. 2,00,000 in year 1, Rs. 2,00,000 in year 2, Rs.3,00,000 in year 3, Rs.2,00,000 in year 4, and Rs. 3,50,000 in year 5. The cost of capital for the firm is 10 percent. Use the NPV method to determine whether the company should go ahead with the project. (6)
- 12 a) What is the balance sheet? Distinguish between assets and liabilities. (5)
- b) What is the money market? What are the various instruments in the money market? (5)
- 13 a) Mention the canons of taxation. (4)
- b) . The following table gives the demand of a company for five years. Use the trend method to project the demand for the years of 2018, 2019 and 2020. (6)

| Year | Demand |
|------|--------|
| 2013 | 200    |
| 2014 | 220    |
| 2015 | 210    |
| 2016 | 230    |
| 2017 | 210    |

- 14 a) What are the major techniques used in forecasting? (6)  
 b) What is FII? Mention its disadvantages. (4)

\*\*\*\*

**APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY**

THIRD SEMESTER B. TECH DEGREE EXAMINATION(S), MAY 2019

**Course Code: HS210**

**Course Name: LIFE SKILLS**

Max Marks: 50

Duration: 2Hours

**PART A**

*Answer all questions, each carries 6 marks.*

- (a) Differentiate between Transactional leader and Transformational leader. (3)  
 (b) Explain different levels of leadership. (3)
- Discuss about the six thinking hats. Explain the significance of colours associated with each. (6)
- (a) Discuss how to manage conflicts in teams. (3)  
 (b) Differentiate between group discussion and debate. (3)
- (a) List the main functions of left and right brain. (3)  
 (b) Write a covering letter to the manager of an MNC enquiring about the vacancy of web developer in their firm. (3)
- Explain the moral reasoning development over different stages according to Kohlbergs theory. (6)

**PART B**

6. *Read carefully the following case and answer the questions given below, it carries 20*

*marks.*

**(Case study)**

Greenhouse protocol establishes comprehensive global standardized frameworks to measure and manage greenhouse gas (GHG) emissions from private and public sector operations, value chains and mitigation actions. Building on a 20-year partnership between World Resources Institute (WRI) and the World Business Council for Sustainable Development (WBCSD), GHG Protocol works with governments, industry associations, NGOs, businesses and other organizations. GHG Protocol arose when WRI

and WBCSD recognized the need for an international standard for corporate GHG accounting and reporting in the late 1990s. Together with large corporate partners such as BP and General Motors, in 1998 WRI published a report called, “Safe Climate, Sound Business.” It identified an action agenda to address climate change that included the need for standardized measurement of GHG emissions. Similar initiatives were being discussed at WBCSD. In late 1997, WRI senior managers met with WBCSD officials and an agreement was reached to launch an NGO-business partnership to address standardized methods for GHG accounting. WRI and WBCSD convened a core steering group comprised of members from environmental groups (such as WWF, Pew Center on Global Climate Change, The Energy Research Institute) and industry (such as Norsk Hydro, Tokyo Electric, Shell) to guide the multi-stakeholder standard development process.

The first edition of the Corporate Standard, published in 2001, has been updated with additional guidance that clarifies how companies can measure emissions from electricity and other energy purchases, and account for emissions from throughout their value chains. GHG Protocol also developed a suite of calculation tools to assist companies in calculating their greenhouse gas emissions and measure the benefits of climate change mitigation projects. The Paris Agreement, adopted within the United Nations Framework Convention on Climate Change (UNFCCC) in December 2015, commits participating all countries to limit global temperature rise, adapt to changes already occurring, and regularly increase efforts over time. GHG Protocol is developing standards, tools and online training that helps countries and cities track progress towards their climate goals

- A. No country can afford to tackle the climate challenge alone. Substantiate this statement. (5)
- B. As an engineer suggest better ways to reduce greenhouse gas emission. (5)
- C. As of the present situation, do you think that there are effective movements for resisting global warming from the authorities? Justify your answer. (5)
- D. Identify who all can play key role in controlling nations greenhouse gas emission. (5)