L-1/T-2/CE **Date: 15/10/2022**

BANGLADESH UNIVERSITY OF ENGINEERING AND TECHNOLOGY, DHAKA

L-1/T-2 B. Sc. Engineering Examinations 2020-2021

Sub: **CE 103** (Surveying)

Full Marks: 280 Time: 3 Hours

The figures in the margin indicate full marks

USE SEPARATE SCRIPTS FOR EACH SECTION

SECTION – A

There are **FOUR** questions in this section. Answer any **THREE** questions.

Assume any reasonable data, if needed

1. (a) How the rectilinear area is calculated using ordinate method? Differentiate between the following methods of earthwork volume calculation: by using spot heights and by using contours. **(12)**

(b) During a differential leveling procedure the following staff readings were observed successively- **(19⅔)**

2.250, 3.120 (invert staff), 1.140, 3.650, 2.880 and 2.04 ft. The level was shifted to a new setup after taking the 4th reading. The 1st reading was taken at a temporary bench mark having a reduced level =110 ft.

(i) Using the rise and fall method, calculate the reduced level (RL) of the stations. Apply usual checks and draw necessary diagram.

(ii) If the last station is another benchmark (BM) having RL = 109.50 ft, check the RL calculated by rise and fall method for misclosure error and do necessary corrections (if there is any misclosure error).

Assume, total level route distance between the start and the end point = 2.8 mile and misclosure constant C = 12 mm. [1 mile = 1.609 km]

(c) Define: index contour and horizontal equivalent in contour. Draw and show the characteristics contours of the ridge line and the saddle. **(8+7)**

Write down some merits of using automatic level and digital level.

2. (a) A road embankment of 10 m width at the formation level with side slope 1.5 to 1 and having a total length of 250 m is planned to set on a hilly area. The formation level of the road at zero chainage is 100 m and has a falling gradient of 1 in 200. Consider the ground is level across the centerline of the road. Determine Volume of earthwork for the road embankment. **(17⅔)**

Given, the ground levels (GL) along the centerline of cross-section at chainage of- 0, 50, 100, 150, 200 and 250 m are -101.8, 100.65, 101.15, 99.25, 98.15 and 98.75 m respectively.

Contd P/2

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Contd.... for Q. No. 2

(b) Differentiate between plane and geodetic survey. **(5+8)**

Briefly describe the two-peg test method of checking collimation error that may occur during a leveling procedure.

(c) The top of Hiron point light house is visible just above the horizon from the certain place near beach in "Dublar Char". The height of the observation point is 34 ft from sea-level. If the distance between the lighthouse and the point of observation is 35.5 km, calculate the height of the light house from mean sea level. Also calculate the amount of error due to refraction for both the lighthouse and observation point. **(10)**

(d) Write short note on the graphical method used for contour interpolation. **(6)**

3. (a) A closed-loop traverse ABCDA was run around an area and the following observations were made: **(22⅔)**

Station		Length (m)	Included Angle	W.C.B.
at	to			
A	B	187.4	86°30'02"	140°11'40"
B	C	382.7	80°59'34"	
C	D	106.1	91°31'29"	
D	A	364.8	100°59'15"	

Adjust the angular error, if any, and calculate the coordinates of other stations if the coordinates of the station A are 1000 m East and 1000 m North.

(b) Why is sidereal day shorter than apparent solar day? **(12)**

Find the magnetic declination at a place if the magnetic bearing of the sun at noon is: (i) 188°40′ and (ii) 354°40′

(c) A star has a declination of 30°S and Right Ascension 6 h 30 m. Can this star be seen from an observatory at latitude 40° N? Determine whether this star is rising and setting, never rising, or never setting from the observer's position? **(12)**

4. (a) A house has a window 15' above the ground. Across the street from this house, there is a tall building. The angle of elevation and depression of the top and bottom of this building from the window are 60° and 30° respectively. From the top of the building, a tower is observed with an angle of elevation of 30° which is 60'7.5" away from the building. Determine the height of the tower. **(15)**

Contd P/3

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Contd.... for Q. No. 4

(b) The following bearings were observed while traversing with a compass. Only station C is free from local attraction. Station B must be adjusted by adding 30' and station D must be adjusted by subtracting 15' from the erroneous readings. Determine the correct bearings. Also, determine the missing values in the table. **(12)**

Line	Fore Bearing	Back Bearing
AB	46°5'	226°5'
BC	?	110°15'
CD	65°55'	?
DE	325°40'	144°50'

(c) Show the variation of Equation of Time over the year in a typical graph. Also, show the effect of obliquity and eccentricity in the same graph. **(9)**

(d) Determine the shortest distance between Dhaka (ϕ=90.4°E, θ=23.8°N) and London (ϕ=0.1°W, θ=51.5°N). **(10⅔)**

Note that, for any spherical triangle, $\cos c = (\cos C * \sin a * \sin b + \cos a * \cos b)$

SECTION – B

There are **FOUR** questions in this section. Answer any **THREE** questions.

5. (a) Write down the functions of a transition curve. **(6⅔)**

(b) The table below displays the field data for a techeometric survey using a tacheometer fitted with an anallactic lens for a vertically held staff. **(22)**

Instrument station	Height of instrument (meter)	Staff station	Vertical angle	Staff Readings
O	1.40	B	(-) 5° 30'	1.76, 1.96, 2.16
O	1.46	P	9° 30'	1.49, 1.64, 1.79
P	1.3	Q	12° 00'	1.91, 2.07, 2.23

Calculate the horizontal distances OP, OB and PQ. Also, calculate the elevations of Q, P and O if the elevation of B is 450 meter.

Assume reasonable values for the tacheometric constants.

$$\left[D = ks\cos^2\theta + C\cos\theta;\ V = ks\frac{\sin 2\theta}{2} + C\sin\theta \right]$$

Contd P/4

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Contd.... for Q. No. 5

(c) Derive the equation of an ideal transition curve and hence prove that spiral angle $\Delta_S = \frac{L}{2R}$. **(6+6)**

(d) A horizontal alignment of a rural highway section has the following arrangement: transition curve -> circular curve -> transition curve. **(6)**

Determine the length of each chord and the angle subtended by each chord for setting out half of the circular curve using Rankine's method. Consider 20 chords and the following data: radius of the circular curve = 400 m, $\Delta = 40°$; $\Delta_S = 6°$.

6. (a) List the main features of a tacheometer. Briefly describe a method to obtain the constants of a tacheometer in the field. **(12⅔)**

(b) Estimate the polar deflection angles along with the X-Y co-ordinates for setting out a transition curve in the field using the following data: length of transition curve = 120 m; radius of circular curve = 500 m and number of chords = 12. **(12)**

(c) With neat sketches prove that the transition curve bisects the shift. **(10)**

(d) A parabolic vertical curve is to be set out connecting two uniform grades of +4.5% and -2.5%. Chainage and reduced level of vertical curve (PVC) are 950 meters and 20.5 meters respectively. **(12)**

The rate of vertical curvature (k) is 35. Calculate the chainage and reduced levels of PVI, PVT and midpoint of the curve.

Here, k is the length of curve per percent algebraic difference in intersecting grades.

7. (a) What are the important considerations in selecting the stations for Chain Survey? Distinguish between: (i) Check Line and Tie Line; (ii) Scale of a Map and Representative Fraction (RF). **(6+6)**

(b) Write short notes on "Gunter's Chain", "Optical Square" and "Reconnaissance Survey". **(3×5)**

(c) In passing an obstacle in the form of a pond, stations A and D (on the main line) were taken on the opposite side of the pond. On the left of AD, a 230 m long line AB was laid down. Another 280 m long second line AC was ranged on the right of AD with the points B, D and C being in the same straight line. BD and DC were then chained and found to be 125 m and 137.5 m respectively. Determine the length of AD. **(12)**

(d) Describe the procedure to overcome an obstacle to ranging if both ends of the line are not visible from the intermediate point. **(7⅔)**

Contd P/5

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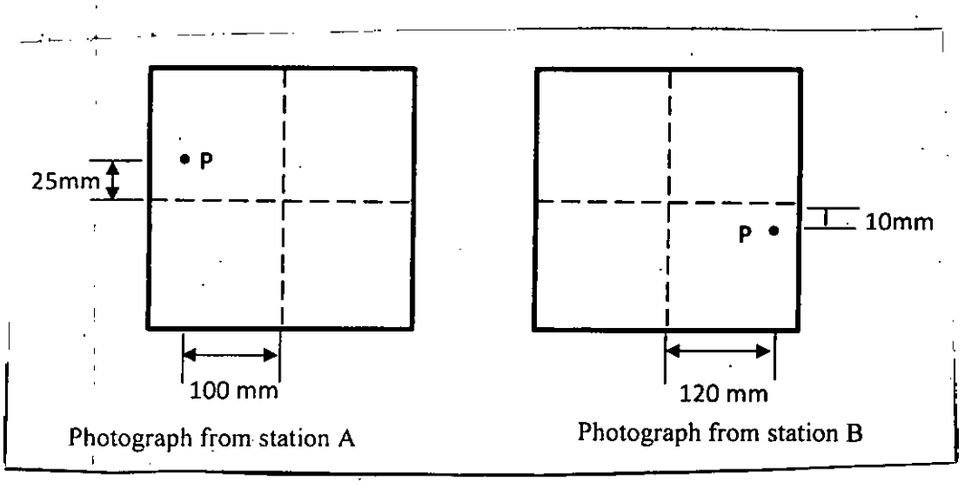
8. (a) Describe the basic principles of determining the position of an object in global positioning system (GPS) using neat sketches. Give a list of applications of remote sensing in Civil Engineering. **(11)**

(b) Classify Photogrammetry and briefly describe two types of photogrammetry. Write down the requirements of an aerial camera. **(6+3)**

(c) The following figures shows the photographs taken in a terrestrial photogrammetry with the camera axis horizontal from stations A and B. Camera axis at point A makes an angle of 35° with the base line AB, while the camera axis produce an angle of 22° with AB at point B. Distance between A and B is 125 m and focal length of the camera is 325 mm. Determine (i) horizontal distance of point P from stations A and B. (ii) RL of point P, if RL of the camera axis at stations A is 12 m. **(14)**



(d) The distance from the principal point to an image on a photograph is 6.44 cm, and the elevation of the object above the datum (sea level) is 250 m. What is the relief displacement of the point if the datum scale is 1/15000 and the focal length of the camera is 15 cm. A tower, 50 m high also appears on the same photograph. The distance of the image of the top of the tower with 10.35 cm. Compute the displacement of the image of the top of the tower with respect to the image of its bottom. The elevation of the bottom of the tower is 1250 m. **(12⅔)**

L-1/T-2/CE **Date : 30/10/2022**

BANGLADESH UNIVERSITY OF ENGINEERING AND TECHNOLOGY, DHAKA

L-1/T-2 B. Sc. Engineering Examinations 2020-2021

Sub : **MATH 139** (Differential Equations and Statistics)

Full Marks : 210 Time : 3 Hours

The figures in the margin indicate full marks.

Symbols have their usual meaning.

USE SEPARATE SCRIPTS FOR EACH SECTION

SECTION – A

There are **FOUR** questions in this section. Answer any **THREE**.

1. (a) Sketch the slope field of the following differential equation **(15)**

$$\frac{dy}{dx} = x^2 y.$$

Hence show the solution passing through $y(0) = 1$.

(b) What is the condition for a differential equation to be exact? Determine whether the given differential equation is exact or not. If it is not, make it exact, then solve it. **(20)**

$$\left(2y\sin x\cos x - y + 2y^2 e^{xy^2}\right)dx - \left(x - \sin^2 x - 4xye^{xy^2}\right)dy = 0$$

2. (a) What is Bernoulli's equation? In the study of population dynamics one of the most famous models for a growing but bounded population is the **logistic equation** **(15)**

$$\frac{dP}{dt} = P\left(a - bP\right),$$

where a and b are positive constants. Solve it. Also predict the Bangladeshi population in the year 2100. (Guess all necessary values).

(b) Solve the following differential equations **(20)**

$$y'' + y = e^x \quad \text{and} \quad y'' + y = \sin x$$

hence sketch the graph of the solutions and compare the results.

3. (a) Convert the following differential equation **(20)**

$$x^2y'' + xy' - y = \ln x$$

to constant coefficients and hence solve by using variation of parameters.

(b) A mass weighing 2 pounds stretches a spring 6 inches. At $t = 0$ the mass is released from a point 10 inches above the equilibrium position with a downward velocity of $\frac{4}{3}$ ft./s. Find the differential equation that represent the model and hence solve it. Sketch the graph of the solution. **(15)**

Contd P/2

MATH 139/CE

4. (a) Form the partial differential equation by eliminating the arbitrary functions from **(10)**

$$x = f(z) + g(y)$$

(b) Find the integral surface of the partial differential equation $(x - y)p + (y - x - z)q = z$ passing through the circle $z = 1, x^2 + y^2 = 1$. **(10)**

(c) Find a complete integral of $pxy + pq + qy = yz$. **(15)**

SECTION – B

There are **FOUR** questions in this section. Answer any **THREE**.

5. Solve the following:

(a) $\left(D_x^2 - 5D_xD_y + 6D_y^2\right)z = \sin(2x - y)$. **(11)**

(b) $\left(x^2D_x^2 + 2xyD_xD_y - xD_x\right)z = \dfrac{x^3}{y^2}$. **(12)**

(c) $\left(D_x^2 - 3D_x + 3D_y - D_y^2\right)z = xy - 2e^{x-3y}$. **(12)**

6. (a) Why is central tendency important? Where can we use central tendency in our daily life? **(5)**

(b) Calculate mean, median, mode and the lower and upper quartiles from the following distribution of marks obtained by 49 students in a class. Compute also the semi-interquartile range and the mode. **(15)**

Marks	5-10	10-15	15-20	20-25	25-30	30-35	35-40	40-45
No. of Students	5	6	15	10	5	4	2	2

(c) A factory produces two types of electric lamps A and B. In an experiment relating to their life, the following were obtained: **(15)**

Life in months	20-30	30-40	40-50	50-60	60-70	70-80	80-90
Lamp A	15	30	44	60	30	14	7
Lamp B	25	40	60	35	20	15	5

Compare the variability of the life of the two varieties using coefficient of variation.

7. (a) An analysis of workers resulted in the following distribution: **(20)**

Earnings (Tk)	50-70	70-90	90-110	110-130	130-150	150-170	170-190
No. of employees	4	8	12	20	6	7	3

Calculate the first four moments about assumed mean. Convert the result into moments about the mean. Using moments calculate the coefficient of skewness and kurtosis and comment on the shape based on the results obtained.

Contd P/3

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Contd ... Q. No. 7

(b) The probability that a married man watches a certain TV shows is 0.4 and that a married woman watches the show is 0.5. The probability that a man watches the show, given that his wife does, is 0.7. Find **(8)**

(i) the probability that a married couple watches the show.

(ii) the probability that a wife watches the show given that her husband does.

(iii) the probability that at least one person of a married couple will watch the show.

(c) A traffic control officer reports that 75% of the trucks passing through a check post are from within Dhaka city. What is the probability that at least three of the next fice trucks are from out of the city? **(7)**

8. (a) Write short notes on (i) Null and alternative hypotheses, (ii) Level of significance and degrees of freedom, (iii) Type-I and Type-II errors, (iv) One-tailed and two-tailed tests. **(10)**

(b) The following table shows the hardness (X) and tensile strength (Y) of 5 samples of metal: **(12)**

X	146	152	158	164	170
Y	75	78	77	89	82

Find the regression line of Y on X. Is this linear model adequate for the given data set? Justify your result.

(c) A manufacturer intends that his electric bulbs have a life of 1000 hours. He tests a sample of 20 bulbs, drawn at random from a batch and discovers that the mean life of the sample bulbs is 990 hours with standard deviation of 22 hours. Does this signify that the batch is not up to the standard? (Given that $\nu = 19$, $t_{0.01} = 2.539$). **(13)**

L-1/T-2/CE **Date: 19/10/2022**

BANGLADESH UNIVERSITY OF ENGINEERING AND TECHNOLOGY, DHAKA

L-1/T-2 B. Sc. Engineering Examinations 2020-2021

Sub: **PHY 151** (Structure of Matter, Electricity & Magnetism and Modern Physics)

Full Marks: 210 Time: 3 Hours

The figures in the margin indicate full marks

USE SEPARATE SCRIPTS FOR EACH SECTION

SECTION – A

There are **FOUR** questions in this section. Answer any **THREE** questions.

1. (a) Explain the term 'Lattice+Basis=Crystal Structure'. Also mention the characteristics of basis. **(6)**

   (b) What are the 14 Bravais lattices in 3-D crystal system? Mention their unit cell characteristics and example of each. Draw the unit cells having characteristics $\alpha = \beta = \gamma = 90^\circ$. **(19)**

   (c) Define primitive cell. Draw the primitive cell corresponding to the structure of cesium chloride at room temperature. **(10)**

2. (a) Define atomic packing factor and calculate this for a body-centered cubic structure. **(8)**

   (b) How to find Miller indices of a crystal plane in space lattice? Draw the planes for which the Miller indices are (112), (200), and (120) for a cubic system. **(12)**

   (c) Derive the relation between interplanar spacing and Miller indices for a cubic system. Find the perpendicular distance between the two planes indicated by the Miller indices (121) and (212) in a unit cell of a cubic lattice with a lattice constant '*a*'. **(15)**

3. (a) State Bragg's law of X-ray diffraction. Why the X-ray diffraction spectra of KCl is different from that of KBr in spite of similar crystal structure? **(7)**

   (b) Write down the importance of crystal defects. Explain Schottky and Frankel defects in case of ionic crystals. **(10)**

   (c) Deduce an expression for total potential energy at the equilibrium separation in case of ionic crystal. Calculate the potential energy per ion in case of NaCl crystal, where the equilibrium separation between ions is 0.281 nm, Madelung constant is 1.748 and exponent $n = 9$. **(18)**

4. (a) What is meant by dielectric constant (k) of the material? Show that Gauss' law for dielectric is given by $\epsilon_0 \oint k\vec{E}.d\vec{S} = q$, where the symbols have their usual meanings. **(12)**

   (b) What is an electric dipole moment $(\vec{p})$? An electric dipole is placed in a uniform external electric field $(\vec{E})$. Show that (i) the torque exerted on the dipole by the field is given by $\vec{\tau} = \vec{p} \times \vec{E}$ and (ii) the potential energy is given by, $U = -\vec{p}.\vec{E}$. **(18)**

   (c) An electric dipole consists of two opposite charges of magnitude 2×10^{-6} C separated by a distance of 1 cm. It is placed in an external electric field of 2×10^{5} N/C. What maximum torque does the field exert on the dipole? **(5)**

Contd P/2

SECTION – B

There are **FOUR** questions in this section. Answer any **THREE** questions.

5. (a) Define the capacitance of a capacitor. **(5)**

(b) Suppose a capacitor is charged through a resistance for a constant emf. Show that the charge on the capacitor at any time t during charging is $q = q_0\left(1 - e^{-t/RC}\right)$, where q_0 = the maximum charge of a capacitor. Draw a graph for the variation of 'q' with 't' during the charging process. What is the time constant of the circuit? **(20)**

(c) A 150 μF capacitor is connected through a 500 Ω resistor to 40 V battery. How long does it take for the charge on a capacitor plate to reach $0.8q_0$? **(10)**

6. (a) State Faraday's law of induction. Show that the energy stored in an inductor is $\frac{1}{2}Li^2$, where the symbols have their usual meaning. **(12)**

(b) What is Lorentz Force? Obtain an expression for the torque acting on a current carrying coil placed in a uniform magnetic field. **(15)**

(c) Briefly explain the magnetic hysteresis loop with necessary figure. **(8)**

7. (a) Briefly describe a photo-multiplier tube with schematic diagram. **(9)**

(b) Show that the expression for the change in wavelength of a photon undergoes Compton scattering is $\Delta\lambda = \frac{h}{m_0 c}(1 - \cos\phi)$, where ϕ is the angle between the direction of incident photon and scattered photon. What is Compton wavelength? **(16)**

(c) A photon of 2 MeV collides with a free but stationary electron and scatters off at 60°. What is the kinetic energy of the recoil electron and energy of the scattered photon? **(10)**

8. (a) Briefly describe liquid drop model of nucleus. **(9)**

(b) Derive an expression for the semi-empirical mass formula with volume energy, surface energy and Coulomb energy. **(16)**

(c) Suppose you need 250 kWh electric energy per month in your house. How long you can survive by the energy produced by 10g of uranium by fission process. Given mass of U^{235} = 235.0457 amu, mass of n = 1.0087 amu, mass of Ba^{141} = 140.9177 amu and mass of Kr^{92} = 91.8854 amu. **(10)**

L-1/T-2/CE **Date : 03/11/2022**

BANGLADESH UNIVERSITY OF ENGINEERING AND TECHNOLOGY, DHAKA

L-1/T-2 B. Sc. Engineering Examinations 2020-2021

Sub : **HUM 185** (English)

Full Marks : 140 Time : 3 Hours

The figures in the margin indicate full marks.

USE SEPARATE SCRIPTS FOR EACH SECTION

SECTION – A

There are **FOUR** questions in this section. Answer **Q. No. 1** and any **TWO** from the rest.

1. (a) Explain with reference to the context any <u>one</u> of the following: **(8)**

(i) "Capital punishment kills a man at once, but lifelong imprisonment kills him slowly. Which executioner is the more humane, he who kills you in a few minutes or he who drags the life out of you in the course of many years?"

(ii) "Oh! My poor Matilda! Mine were false. They were not worth over five hundred francs!"

(b) Answer any <u>one</u> of the following: **(10)**

(i) How did fifteen years of imprisonment change the lawyer's perception of life?

(ii) How does "The Garden Party" demonstrate prejudices of elite class against the working-class people? Elucidate.

(c) Answer any <u>three</u> of the following: **(12)**

(i) Give a brief description of the party arranged by the banker.

(ii) How did the lawyer's reading preferences change gradually?

(iii) What was Laura's reaction after seeing Mr. Scott's dead body?

(iv) Comment on the character of Madame Forestier.

(v) What did Mr. and Mrs. Loisel decide to do when they lost the necklace?

2. Recast and correct any <u>ten</u> of the following sentences: **(20)**

(i) I congratulate you for your success.

(ii) We must conform with the rules.

(iii) The woman was dressed with black.

(iv) You must guard from bad habits.

(v) They're indifferent for politics.

(vi) John's popular among his friends.

(vii) Translate this passage to English.

(viii) She's always fond to talk.

(ix) You must practice to speak English.

(x) Who do you think I saw yesterday?

(xi) Lessons begin at eight and a half.

(xii) I put my watch with the radio news.

Contd P/2

HUM 185/CE

3. Give the meanings of and make sentences with any ten of the following words: **(20)**

   Vehemence, Transcend, Supersede, Rapport, Prevalent, Obscure, Lament, Intrepid, Traverse, Litter, Furtive, Equivocal.

4. Write a précis of the following passage with a suitable title: **(20)**

Printing is a technique for applying under pressure a certain quantity of colouring agent onto a specified surface to form a body of text or an illustration. Certain modern processes for reproducing texts and illustrations, however, are no longer dependent on the mechanical concept of pressure or even on the material concept of colouring agent. Because these processes represent an important development that may ultimately replace the other processes, printing should probably now be defined as any of several techniques for reproducing texts and illustrations, in black and in colour, on a durable surface and in a desired number of identical copies. There is no reason why this broad definition should not be retained, for the whole history of printing is a progression away from those things that originally characterized it: lead, ink, and the press. It is also true that, after five centuries during which printing has maintained a quasi-monopoly of the transmission or storage of information, this role is being seriously challenged by new audiovisual and information media. Printing, by the very magnitude of its contribution to the multiplication of knowledge, has helped engender radio, television, film, microfilm, tape recording, and other rival techniques. Nevertheless, its own field remains immense. Printing is used not merely for books and newspapers but also for textiles, plates, wallpaper, packaging, and billboards. It has even been used to manufacture miniature electron circuits. The invention of printing at the dawn of the age of the great discoveries was in part a response and in part a stimulus to the movement that, by transforming the economic, social, and ideological relations of civilization, would usher in the modern world. The first major role of the printed book was to spread literacy and then general knowledge among the new economic powers of society. It is significant that the contents of the first books were often devoted to literary and scientific works as well as to religious texts, though printing was used to ensure the broad dissemination of religious material. Printing participated in and gave impetus to the growth and accumulation of knowledge. In each succeeding era there were more people who were able to assimilate the knowledge handed to them and to augment it with their own contribution. From Diderot's encyclopedia to the present profusion of publications printed throughout the world, there has been a constant acceleration of change, a process highlighted by the Industrial Revolution at the beginning of the 19th century and the scientific and technical revolution of the 20th.

Contd P/3

HUM 185/CE

SECTION – B

There are **FOUR** questions in this section. Answer **Q. No. 5** and any **TWO** from the rest.

5. Read the following passage carefully and answer the questions that follow: **(30)**

Language of Ayapaneco has been spoken in the land now known as Mexico for centuries. It has survived the Spanish conquest, seen off wars, revolutions, famines and floods. But now, like so many other indigenous languages, it's at risk of extinction. There are just two people left who can speak it fluently – but they refuse to talk to each other. Manuel Segovia, 75, and Isidro Velazquez, 69, live 500 meters apart in the village of Ayapa in the state of Tabasco. It is not clear whether there is a long- buried argument behind their mutual avoidance, but people who know them say they have never really enjoyed each other's company. "They don't have a lot in common," says Daniel Suslak, a linguistic anthropologist from Indiana University, who is involved with a project to produce a dictionary of Ayapaneco. Segovia, he says, can be "a little prickly" and Velazquez, who is "more stoic", rarely likes to leave his home. The dictionary is part of a race against time to revitalize the language before it is too late. "When I was a boy everybody spoke it," Segovia said. "It's disappeared little by little, and now I suppose it might die with me."

Segovia, who denied any active animosity with Velazquez, retained the habit of speaking Ayapaneco by conversing with his brother until he died about a decade ago. Segovia still uses it with his son and wife who understand him, but cannot produce more than a few words themselves. Velazquez reputedly does not regularly talk to anybody in his native tongue anymore. Ayapaneco's demise was sealed by the advent of education in Spanish in the mid 20th century, which for several decades included an explicit prohibition on indigenous children speaking anything else. Urbanization and migration from the 1970s then ensured the break-up of the core group of speakers concentrated in the village. "It's a sad story," says Suslak, "but you have to be really impressed by how long it hung around." The National indigenous language Institute is planning a last attempt to get classes going in which the last two surviving speakers can pass their knowledge on to other locals. Previous efforts have failed to take hold due to lack of funding and limited enthusiasm. "The classes would start off full and then the pupils would stop coming," Segovia said.

Answer the questions

(i) What do we know about the relationship between Segovia and Velazquez?

(ii) What exactly are the two men like? How often do the men use Ayapaneco?

(iii) What factors led to the decline of the language?

(iv) What plans are there to revitalize Ayapaneco? What has happened to plans in the past?

(v) As there is no title of the passage, give an appropriate title and justify your answer.

(vi) Give the meanings of the following words as used in the passage:

conquest, revolution, indigenous, extinction, explicit, enthusiasm

Contd P/4

HUM 185/CE

6. (a) As the Deputy Purchase Manager of a Concord Construction Ltd., write a complain letter to the General Manager of Kaiyo Ceramics Ltd., telling him that most of the contents of the case of 80 cm × 80 cm tiles were found broken due to heavy load which you ordered on 10th September, 2022. The cost of broken articles works out to BDT 1250000/- approximately, therefore demand immediate replacement. (Provide other details from your own.) **(10)**

   (b) Give phonetic transcription of the following words: (any five) **(10)**

   Short, Poor, Father, Pull, Total, Bound

7. (a) Write a dialogue between two friends about causes and effects of brain drain. **(10)**

   (b) Write a short composition on any one of the following topics: **(10)**

   (i) Ensuring Safety in Construction Sites: Prospects and Challenges

   (ii) Industrial Visit: A Way of Enriching Pragmatic Knowledge

   (iii) Contribution of Civil Engineers in Bangladesh

8. (a) Transform the following sentences as directed: (Any five) **(10)**

   (i) The box is too heavy for me to carry. (Complex)

   (ii) Since the weather was cold, we returned from the playground. (Simple)

   (iii) Because of his being poor, he could not buy a costly gift. (Compound)

   (iv) Do or die. (Complex)

   (v) In 1971, Bangladesh got independence. (Compound)

   (vi) When his father saw it, be became very angry. (Simple)

   (b) Write short notes on any two of the following: **(10)**

   (i) Monophthong

   (ii) 'Front Matter' of a formal report

   (iii) Context Modulators: Their Usage in a Compare and Contrast Paragraph

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