POKHARA UNIVERSITY

Level: Bachelor Semester: Spring Year : 2017
Programme: BE Full Marks: 100
Course: Communication Techniques Pass Marks: 45
Time : 3hrs.

Candidates are required to give their answers in their own words as far as practicable.

The figures in the margin indicate full marks.

Attempt all the questions.

1. Read the following passage and answer the given questions: 15

The surveying of any regional area, such as a state or two, is a multi-step process. First, two controlling survey lines are established: a baseline, which runs east-west and a principal meridian, which runs north-south . The locations of the two are determined by a previously chosen initial point, where they originate and thus intersect. Next, at a defined distance interval, commonly 24 or 30 miles (48 km) depending on the year and location, standard parallels of latitude are established parallel to the baseline. The meridian, baseline and standard parallels thus established form a lattice upon which all further surveying is then based. Subsequent work divides the land into survey townships of roughly 36 square miles (~93 km^2) or 6 miles (~9.7 km) on each side. This is done by the establishment of township and range lines. Township lines run parallel to the baseline (east-west), while range lines are true meridians and thus run north-south; each are established at six mile (10 km) intervals. Lastly, townships are subdivided into 36 sections of approximately one square mile (640 acres, ~2.6 km^2) and sections into four quarter-sections of 0.25 square mile (160 acres, ~0.65 km^2) each. The intersection of a township line (or baseline) with a range line (or principal meridian) constitutes a *township corner*, of a section line with any other type of line a *section corner*, and a point halfway between any two section corners a *quarter corner*. The federal government typically surveyed only to this quarter-section level, the subdivision of smaller parcels being carried out subsequently by private surveyors after original sale.

Because the survey design is two-dimensional (rectangular), while the actual earth is three-dimensional (~ spherical), adjustments to land areas must be made periodically to prevent error propagation; not all sections can be one square mile nor can all townships be exactly 36 square miles. More specifically, all north-south running lines (all range lines and half of all section lines), as with the prime meridian, are always established with reference to

true, geodetic north. But it is a physical impossibility to meet this condition and still maintain a rectangular land grid, because such lines converge on the North Pole—they are meridians.

These adjustments are done at two different scales. At the small scale (within a township), it is done by starting the sectional surveys (township "subdivisions") in the southeast corner and moving progressively toward the northwest corner. The algorithm used is to move northward to establish the six eastern-most sections (and quarter-sections), then move west at one mile intervals, parallel to the eastern boundary of the township, repeating this process, until the western side of the township is reached. The result of this is that the northernmost and westernmost tiers of sections—11 in all—are thus allowed to deviate from one square mile, but the other (southeasterly-most) 25 sections are not. This method accommodates the curvature problem within a township, and it also allows for any errors made during the surveying itself—which were nearly unavoidable due to the physical difficulty of the work and the crude equipment used—without overly compromising the basic rectangular nature of the system as a whole. At the larger multiple township scale, the standard parallels mentioned above allow a longitudinal re-setting of township corner locations, so that townships widths do not continually decrease as one proceeds north (and is in fact the primary reason for their establishment). Thus, corrections for curvature of the earth exist at two separate spatial scales—a smaller scale within townships, and a larger scale between multiple townships and within standard parallels.

Questions:

a) How are the two survey lines determined on the basis of land survey?
b) What are the differences between township lines, range lines and base lines?
c) Why is there physical impossibility to meet the condition of different dimension of survey design?
d) How does township method accommodate problem in curvature method?
e) How does the federal government use land-surveying system?

2. Answer ***any three*** the following questions: 3×5

a) "Spring days, summer days and all sorts of days that would be her own" Describe it with reference to the text. (The Story of an Hour)
b) How do 'Sense of Proportion' 'Emancipation' and 'Impartiality' help to explain more about wisdom? Would you like to be knowledgeable or wise? Explain with your logical argument. (Knowledge and Wisdom))
c) Do you believe anyone in this world is free? How is human being laden in the vicious circle of slavery? (Freedom)
d) What does the poet appeal to his mother in the poem? Explain about the phrases used in the poem "eyes welling up with tear", "Seven hundred seas away" ((Letter from Foreign Grave)

3. a) Suppose you are the secretary of the Student Council of your college. And draft a notice with agenda summoning the council meeting on first Sunday of next month. 5

b) Unique Construction Center is seeking a young, energetic and self motivated BE graduate for the post of technical officer. Candidate should possess good communication skill, and sound knowledge of subject matter along with two years' experience in related field .Write a winning application with impressive curriculum vitae to apply for the post. 10

4. a) Make note after reading the passage. 7

In the first half of the 19th century, suspension bridges occasionally collapsed under wind loads because girders tended to have insufficient rigidity. In the latter half of the 19th century, such collapses decreased because the importance of making girders sufficiently stiff was recognized. In the beginning of the 20th century, stiffening girders with less rigidity reappeared as the deflection theory was applied to long-span suspension bridges. The Tacoma Narrows Bridge collapsed 4 months after its completion in 1940 under a wind velocity of only 19 m/s. The deck of the bridge was stiffened with I-girders formed from built-up plates. TheI-girders had low rigidity and aerodynamic stability was very inferior as shown in recent wind-resistant design.

After this accident, wind tunnel tests for stiffening girders became routine in the investigation of aerodynamic stability. Truss-type stiffening girders, which give sufficient rigidity and combined partially with open deck grating, have dominated the design of modern suspension bridges in the United States. A new type of stiffening girder, however, a streamlined box girder with sufficient aerodynamic

Stability was adopted for the Severn Bridge in the United Kingdom in 1966. In the 1980s, it was confirmed that a box girder, with big fairings (stabilizers) on each side and longitudinal openings on upper and lower decks, had excellent aerodynamic stability. This concept was adopted for the Tsing Ma Bridge, completed in 1997. The Akashi Kaikyo Bridge has a vertical stabilizer in the center span located along the centerline of the truss-type stiffening girder just below the deck to improve aerodynamic stability. In the 1990s, in Italy, a new girder type has been proposed for the Messina Straits Bridge, which would have a center span of 3300 m. The 60-m-wide girder would be made up of three oval box girders which support the highway and railway traffic. Aerodynamic dampers combined with wind screens would also be installed at both edges of the girder. Stiffening girders in recent suspension bridges are shown in the text itshows the wind-resistant design procedure specified in the Honshu–Shikoku Bridge Standard. In the design procedure, wind tunnel testing is required for two purposes: one is to verify the airflow drag, lift, and

moment coefficients which strongly influence the static design; and the other is to verify that harmful vibrations would not occur. Gust response analysis is an analytical method to ascertain the forced vibration of the structure by wind gusts. The results are used to calculate structural deformations and stress in addition to those caused by mean wind. Divergence, one type of static instability, is analyzed by using finite displacement analysis to examine the relationship between wind force and deformation. Flutter is the most critical phenomenon in considering the dynamic stability of suspension bridges, because of the possibility of collapse. Flutter analysis usually involves solving the motion equation of the bridge as a complex Eigen value problem where unsteady aerodynamic forces from wind tunnel tests are applied.

b) Suppose you are the chief executive officer at Marie's Fashion. Ms Maud, an out-of-town customer, bought an expensive dress from you and mailed it back three weeks later, asking for a refund. Ms Maud explained that the dress was not a good fit and that she really did not like it anymore. But perspiration stains on the dress proved that she had worn it. Now, write a letter of refusal with proper explanation why you can't refund the money. 8

5. a) Suppose you have shop named Pritam Science Lab Equipment Shop and you have demanded some science lab equipments from Harati Science Lab Company, Gorakhpur India, but some of the equipments are found damaged and smashed while opening. Write acomplaint and adjustment letter for the damaged items. 8

b) Write a technical description of any product you like and explain the parts, functions and use. 7

6. a) Prepare cover page, abstract, introduction, objectives findings and results of a Report to be submitted in Urban Development Ministry of Nepal on the topic of 'Dhobikhola and Bagmati Corridor Construction' Kathmandu. 8

b) Prepare a technical talk on *Problem on Reconstruction after the Earthquake.* 7

7. a) Transform the following sentences as indicated in brackets. 5

i. She will do her assessment very quickly. (passive)
ii. This technical talk is not being written. (active)
iii. As students, we should follow the schedule. (British)
iv. He has served as attorney for many years. (American)
v. The friend said, "Man is mortal". (indirect)

b) Write a short paragraph on "A Business Trip to Pokhara" using simple, compound, complex, and compound complex sentences. 5