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PURBANCHAL UNIVERSITY

2017

B.E. (Civil)/Eighth Semester/*Final/Chance*

Time: 03:00 hrs.

Full Marks: 80 /Pass Marks: 32

BEG455CI: Safety Engineering and Disaster Risk Management (New Course)

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

All questions carry equal marks. The marks allotted for each sub-question is specified along its side.

Answer FIVE questions.

- 1(a) ✓ Explain about the impact of human characteristics on safety engineering. Also, discuss the things to be reported by safety personnel in safety reports. 4+4
- (b) ✓ Explain various types of hazard in engineering field. Briefly explain the thermal hazard. 4+4
- 2(a) Explain the government standards of safety and health. Discuss on risk factors in construction area. 4+4
- (b) Differentiate between active and passive hazard control. Explain the Third Cardinal Rule of Hazard Control and its application for civil engineering projects. 3+5
- 3(a) ✓ Discuss about the factors affecting safety performance of a civil engineering project. Calculate ISR and IFR for a project with 450 workers averaging 39 hrs per week, with 22 workers injured in 9 months and when the project lost 75 days of work and analyze the results. $ISR = 109.58$, $IFR = 32.14$ 2+6
- (b) ✓ What are the agencies providing safety management services in Nepal? Discuss about Employer Liability Laws and Workmen's Compensation Laws for safety. 8
- 4(a) ✓ Define stress management. Discuss about the causes of individual stress, its significance and techniques of stress management. 2+6
- (b) ✓ Discuss about the government regulations, existing institutional structure and current status related to disaster management in Nepal. 8

Contd. ...

(2)

5(a) Explain disaster management and list down the various approaches for disaster management. Discuss the various activities before and after a disaster in light to disaster management cycle. 8

(b) What are the various types disasters? Explain the impacts and mitigation measures of avalanche disaster. 8

6 Write short notes on any FOUR: 4×4=16

(a) Role of Workers in Safety Management

(b) Impact of Natural Disaster on Development

(c) Value of Safety Survey

(d) Trade Union

(e) Contract Management

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

All questions carry equal marks. The marks allotted for each sub-question is specified along its side.

Answer FIVE questions.

- 1(a) What do you mean by Safety Engineering? Discuss briefly scope of safety engineering. 1+3
- (b) Define various types of hazard in engineering field. Briefly explain the biological hazard. 8
- (c) Discuss briefly attitude towards and value of safety survey. 2+2
- 2(a) Explain briefly the types of cardinal rules for hazard control. Discuss the first cardinal rule of hazard control. 8
- (b) Define industrial safety. Discuss briefly the agencies rendering safety services. 8
- 3(a) What are the injury frequency and severity rates for a firm with 80 workers average in 40 hours a week each if in 6 months, four workers were injured and if they lost jointly 203 days from work? List factors for appraising plant conditions. 6+2
- (b) Explain briefly possible hazards in construction projects and how do you control the hazards as a safety engineer. 8
- 4(a) What is disaster? Explain briefly the types of disaster. 8
- (b) What do you mean by stress? Explain briefly the techniques of stress management. 8
- 5(a) Explain the impact of natural disaster on environment and development. 8
- (b) What is disaster management? Explain the disaster management cycle. 8

Contd. ...

(2)

4x4=16

6. Write short notes on:

- (a) Disaster Management in Nepal**
- (b) Disaster mitigation of earthquake, landslide and flood**
- (c) Acceptable risk Vs unacceptable risk**
- (d) Risk and risk assessment**



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Candidates are required to give their answers in their own words as far as practicable.
All questions carry equal marks. The marks allotted for each sub-question is specified along its side.
Answer FIVE questions.

- Answer FIVE questions.
- 1(a) Explain the impact of human characteristics on safety. 8
 - (b) Explain electrical energy hazards. Explain acceptable and unacceptable risks. 4+4
 - 2(a) Why is injury frequency survey necessary? How can you develop safe behavior safety programs? 4+4
 - (b) Explain factors to be considered for appraising plant conditions for hazard assessment. 4
 - 3(a) What is trade union? Explain the role of trade union in construction industries. 2+6
 - 2(a) Explain cardinal rules of hazard control. What do you understand by disaster management with suitable examples. 4+2
 - (c) Explain factors to be considered for appraising plant conditions. 4
 - 4(a) Discuss Government standards of safety and health. 6
 - (a) Briefly explain natural hazards in the construction industries. 4
 - (b) Explain the term disaster management. Discuss various natural and artificial disasters. 2+8
 - 5(a) What is risk assessment and vulnerability assessment. Discuss disaster management cycle. 4+4
 - (c) Narrate Workmen's compensation laws. 4
 - (b) Describe the long term plans for preparation and minimization of Earthquake disaster safety policy expressly showing management support for safety. 8
 6. Write short notes on any FOUR objectives and the involvement of different people in disaster management system. 4x4=16
 - (a) Importance of media in disaster management system. Discuss the role of Supervisors, employees, seminar site management, Disaster Preparedness architect, safety professionals and Need and type of training for disaster management 12
 - (c) Motivation Management
 - (b) List the impact of human and machine characteristics on safety. 4

Contd. ...

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BEG455CI: Safety Engineering and Disaster Risk Management (New Course)

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

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Answer FIVE questions.

- 1(a) Explain the impact of human characteristics on safety. 8
- (b) Explain electrical energy hazards. Explain acceptable and unacceptable risks? 4+4
- 2(a) Why is injury frequency survey necessary? How can you develop safe behavior safety programs? 4+4
- (b) Explain factors to be considered for appraising plant conditions. 8
- 3(a) What is trade union? Explain the role of trade union in construction industries. 2+6
- (b) Explain cardinal rules of hazard control with suitable examples. 4
- (c) Explain Workmen's Compensation law. 4
- 4(a) Discuss Government standards of safety and health. 6
- (b) Explain the term disaster management. Discuss various natural and artificial disasters. 2+8
- 5(a) What is risk assessment and vulnerability assessment. Discuss disaster management cycle. 4+4
- (b) Describe the long term plans for preparation and minimization of Earthquake disaster. 8
6. Write short notes on any FOUR: 4x4=16
- (a) Importance of media in disaster management
- (b) Role of Supervisors
- (c) Disaster Preparedness
- (d) Need and type of training for disaster management
- (e) Motivation Management

(2)

- 5(a) Define disaster management. Briefly explain types of disaster. 1+3
- (b) Briefly explain guidelines for risk assessment and vulnerability. Discuss the disaster mitigation measures for floods and landslides. 4+4
- (c) Our country Nepal is relatively ranked very high in terms of vulnerability to natural calamities. Briefly discuss the impacts of natural disaster on environment and development. 4
6. Write short notes on: 4×4=16
- (a) Earthquake Management in Nepal
 - (b) Disaster Management Cycle
 - (c) Safety Signs and Signals
 - (d) Stress Management



PURBANCHAL UNIVERSITY

2012

B.E. (Civil)/Seventh Semester/Final

Time: 03:00 hrs.

Full Marks: 80 / Pass Marks: 32

BEG468CI: Safety Engineering

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

All questions carry equal marks. The marks allotted for each sub-question is specified along its side.

Answer FIVE questions.

- 1(a) What do you mean by Safety Engineering? Discuss briefly safety control devices.
- (b) Define various types of hazard in engineering field. Briefly explain the thermal hazard.
- 2(a) Explain briefly the types of cardinal rules for hazard control. Discuss the first cardinal rule of hazard control.
- (b) Define industrial safety. Discuss briefly the agencies rendering safety services.
- 3(a) Explain the hazard evaluation and discuss briefly acceptable and unacceptable risk.
- (b) Explain briefly the health hazards in construction industry.
- 4(a) What is risk? Explain briefly interpretation of risk analysis.
- (b) Define behavior aspect of risk taking attitudes.
- 5(a) What is safety management? How do you manage the safety measures in the construction site?
- (b) Explain briefly the role of safety manager (safety engineer)
6. Write short notes on any TWO:
 - (a) Injury Frequency Survey
 - (b) Attitude survey to safety management
 - (c) Contract
 - (d) Stress Management

PURBANCHAL UNIVERSITY

2011

B.E. (Civil)/Seventh Semester/Chance

Time: 03:00 hrs.

Full Marks: 80 /Pass Marks: 32

BEG468CI: Safety Engineering

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

All questions carry equal marks. The marks allotted for each sub-question is specified along its side.

Answer FIVE questions.

- 1(a) Why study of safety engineering is essential for civil engineers? List the safety control devices and describe their application in construction field. 4+2+2
- (b) What is the use of safety survey? How report from safety personal is made? 4+4
- 2(a) What are the accepted and unaccepted risks? How it can be differentiated? 4+4
- (b) Describe the types of cardinal rule. 8
- 3(a) What are the injury frequency and severity rates of an industry with 70 workers working 6 days a week and 8 hours? In 6 month 10 workers were injured and they lost 80 days. 8
- (b) What are the factors to be considered for appraising plant condition? 8
- 4(a) What are the agencies in Nepal, that are concerned with the regulation of safety standard in the industry? What is the difference between self applied standard and regulatory standard? 3+5
- (b) What are the roles of supervisor and employer in safety management? 8
- 5(a) How workers can be motivated by the management? What is the role of supervisor in motivating subordinates? 4+4
- (b) What are the techniques of risk analysis? Describe Risk premium? 4+4

Contd. ...

(2)

- 6(a) What are the strategies to control the stress? What are the differences between anticipatory and residual stress? 5+3
- (b) What is the difference between Employers liability law and Workers compensation law? What is the role of trade union in an industry? 4+4
- 7(a) Distinguish between land hazard and thermal hazard. How they affect in construction industry? 4+4
- (b) Write short notes on any TWO:
(i) Difference between Passive Vs- Active hazard
(ii) Employer's attitude towards safety
(iii) Industrial relation 4+4

PURBANCHAL UNIVERSITY

2011

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BEG468CI: Safety Engineering

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All questions carry equal marks. The marks allotted for each sub-question is specified along its side.

Answer FIVE questions.

- 1(a) What do you mean by Safety Engineering? Discuss briefly safety control devices. 8
- (b) Define various types of hazard in engineering field. Briefly explain the thermal hazard. 8
- 2(b) Explain briefly the types of cardinal rules for hazard control. Discuss the first cardinal rule of hazard control. 8
- (b) Define industrial safety. Discuss briefly the agencies rendering safety services. 8
- (a) Explain the hazard evaluation and discuss briefly acceptable and unacceptable risk. 8
- (b) Explain briefly the importance of safety survey in construction industry. 8
- a) What are the types of risk analysis techniques? Explain briefly the importance of contingency fund construction industry. 8
- b) In a construction project, employing 80 workers worked 8 hours a day having 240 workdays had lost 6 days due to accidents and total 10 persons were injured during project period. Find IFR and ISR for this project. 8
- What is safety management? How do you manage the safety measures in the construction site? 8

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PURBANCHAL UNIVERSITY

2010

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BEG468CI: Safety Engineering

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

All questions carry equal marks. The marks allotted for each sub-question is specified along its side.

Answer FIVE questions.

- 1(a) What do you mean by safety control? Discuss briefly safety control signs and signals used in different engineering sectors. 8-5
- (b) List don the various types of energy hazard in engineering field. Briefly explain the physical hazard. - 5 8
- 2(b) What is cardinal rule? Discuss the third cardinal rule of hazard control. - 5 8
- (b) What is attitude survey? Explain the value of safety survey. -5 8
- 3(a) Explain the hazard identification and discuss briefly acceptable and unacceptable risk. - 5 8
- (b) What is accident? Explain the causes of accident in construction industry. - 5 8
- 4(a) What are the injury frequency and severity rates for a firm with 80 workers average in 40 hours a week each if in 6 months, four workers were injured and if they lost jointly 103 days from work? 8
- (b) What is risk? Define behavior aspect of risk taking attitudes. 8
- 5(a) What is safety management? How do you manage the safety measures in the construction site? -4 8
- (b) Explain briefly the role of safety manager (Safety Engineer). 8
6. Write short notes on any TWO: 8+8
- (a) Contract - 4 (b) Industrial Relation
- (c) Worker's compensation law (d) Stress Management -5

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(2)

- (b) Explain briefly the role of Safety Manager (Safety Engineer). 8
- 6(a) What is stress? How do you manage the stress? 8
- (b) What is motivation? Explain briefly Maslow's hierarchy of needs theory. 8
7. Write short notes on any TWO: 8+8
- (a) OSHA
 - (b) Injury
 - (c) Worker's compensation law
 - (d) Trade union

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PURBANCHAL UNIVERSITY
2010

B.E. (Civil)/Seventh Semester/Chance

Time: 03:00 hrs.

Full Marks: 80 / Pass Marks: 32

BEG468CI: Safety Engineering

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

All questions carry equal marks. The marks allotted for each sub-question is specified along its side.

Answer FIVE questions.

- 1(a) What do you mean by Safety Engineering? Discuss briefly the applications of safety engineering in the construction project.
- (b) What do you mean by hazard? Define the thermal hazard.
- 2(a) What are the types of cardinal rules for hazard control. Discuss the first cardinal rule of hazard control.
- (b) What do you mean by industrial safety? Explain briefly role of different agencies rendering safety services.
- 3(a) Why hazard-evaluation is important in the construction project? Explain.
- (b) Explain briefly the health hazards in construction industry.
- 4(a) What are the injury frequency and severity rates for a firm with 90 workers average in 40 hours a week each if in 8 months, four workers were injured and if they lost jointly 104 days from work?
- (b) Define behavior aspect of risk taking attitudes.
- 5(a) What are the role and responsibilities of employer and supervisors in safety management? Explain.
- (b) What is stress? Explain the strategies of the stress management.
6. Write short notes on any TWO: 8+8
 - (a) Trade union
 - (b) Attitude survey to safety management
 - (c) Contract
 - (d) OSHA

PURBANCHAL UNIVERSITY

2009

B.E. (Civil)/Seventh Semester/Final

Time: 03:00 hrs.

Full Marks: 80 / Pass Marks: 32.

BEG468CI, Safety Engineering

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

All questions carry equal marks. The marks allotted for each sub-question is specified along its side.

Answer FIVE questions.

- 1(a) What are the human characteristics that influence safety? Explain the influences of environment on safety. 8
- (b) What is attitude survey? Explain the method of conducting an attitude survey. 8
- 2(a) What can be the hazard control rules? Explain passive hazard control system. 4+4
- (b) What are the mechanical energy hazards? Explain. 8
- 3(a) How can safety behavior of workers be developed from safety programs? Explain in brief. 8
- (b) What can be the health hazards in construction industry? Explain in brief. 8
- 4(a) What is industrial relation? Explain the roles of major stakeholders of industrial relation. 3+5
- (b) What are the techniques for risk analysis? Explain in brief. 8
- 5(a) Explain the roles of supervisors in safety management. 8
- (b) What is stress? How can stress be managed? Explain. 8
- 6 Write short notes on any FOUR: 4×4=16
- (a) Human behaviors aspects in risk analysis
 - (b) Employer's liability in industrial safety
 - (c) Regular standards
 - (d) Injury frequency survey
 - (e) Passive vs. Active hazard controls
 - (f) Electrical energy hazards

PURBANCHAL UNIVERSITY

2014

B.E. (Civil)/Eighth Semester/Final

Time: 01:30 hrs.

Full Marks: 40 /Pass Marks: 16

BEG466CI: Disaster Management

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

All questions carry equal marks. The marks allotted for each sub-question is specified along its side. Sketch neatly wherever necessary. Assume necessary data appropriately if required.

Answer FIVE questions.

1. What are the root causes of Natural Disaster and explain the pre and post Disaster Management?
2. Explain the existing rule and regulation of Disaster Management of Nepal and your suggestions for its improvement.
3. Explain the major causes of Landslide in Nepal and its remedies.
4. Explain the major causes of flood and also explain its impact and its management.
5. Describe the causes of earthquake and its management with the reference of Nepal.
6. What do you understand by integrated disaster managed? Explain in your words.
7. Write short notes on any TWO: 4+4
 - (a) Valcanoes
 - (b) Disaster preparedness
 - (c) Vulnerability

PURBANCHAL UNIVERSITY

2013

B.E. (Civil)/Eighth Semester/Final

Time: 01:30 hrs.

Full Marks: 40 / Pass Marks: 16

BEG466CI: Disaster Management

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

All questions carry equal marks. Sketch neatly wherever necessary. Assume necessary data appropriately if required.

Answer FIVE questions.

- 2 ✓ 1. Define the term Disaster. What are the key elements of disaster risk management? Describe each of them briefly. 2+6
- 5 ✓ 2. Write down the different causes of flood. Write in short about structural and non-structural measures of flood mitigation. 4+4
3. Describe the counter measures against landslide which are practiced in Nepal. Explain with neat sketches wherever applicable. 8
- 2 ✓ 4. What is Seismic Risk? "The Seismic Risk in Nepal is high"; justify the statement. 8
- 5 ✓ 5. Explain Pre-disaster initiatives and Post-disaster management for earthquake disaster in Nepalese context. 4+4
6. What is action plan? Write down the role of media in disaster management. 4+4
7. Write short notes on any TWO:
 - 3 ✓ (a) Hazard assessment and Vulnerability analysis
 - (b) Disability issues in disaster management
 - 2 ✓ (c) Integrated disaster management

PURBANCHAL UNIVERSITY

2012

B.E. (Civil)/Eighth Semester/Final

Time: 01:30 hrs.

Full Marks: 40 /Pass Marks: 16

BEG466CI: Disaster Management

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

All questions carry equal marks. Sketch neatly wherever necessary. Assume necessary data appropriately if required.

Answer FIVE questions.

1. "Nepal is one of the disaster Prone Countries of the world." Justify this statement on your own words. 8
2. What do you mean by "Disaster Management"? Explain briefly about the natural hazard disaster management process and its classification. 8
3. Describe Pre-Disaster initiatives and Post disaster management of land slide disaster. 8
4. Discuss the importance of training in disaster management Explain the types of training for disaster management. 8
5. Define flood disaster. Explain the structural and Non Structural flood control measures that are practiced in Nepal. 8
6. What might be the importance of Voluntary Sector in natural management; write down the government regulation on natural disaster management.
7. Write short notes on any TWO: 4+4
 - (a) Impact of natural disaster on Environment and Development
 - (b) Pre-disaster initiatives and Post Disaster management on Earthquake disaster
 - (c) Vulnerability Assessment and Risk Assessment

PURBANCHAL UNIVERSITY

2011

B.E. (Civil)/Eighth Semester/Final

Time: 01:30 hrs.

Full Marks: 40 / Pass Marks: 16

BEG466CI: Disaster Management

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

All questions carry equal marks. Sketch neatly wherever necessary. Assume necessary data appropriately if required.

Answer FIVE questions.

1. Define the term disaster. Nepal is said to be one of the disaster prone countries of the world. Justify this statement. [2+6]
2. Describe the pre-disaster initiatives and post-disaster management of flood disaster. [8]
3. What are the major problems of disaster management in Nepal? Give your suggestions to solve the problems. [4+4]
4. What are the main causes of slope failures and landslides? Explain briefly the remedial measures of slope failures and landslides. [4+4]
5. Describe the impact of disaster on economy and environment. Development processes increase the disaster risk. Explain with reasons. [4+4]
6. What do you mean by seismic hazards? Explain briefly the different seismic hazards. [2+6]
7. Write short notes on (Any two) [2 x 4 = 8]
- (a) Hazard assessment and vulnerability assessment
 - (b) Event, hazard and disaster
 - (c) Role of media in disaster management

FORDANCHOAL UNIVERSITY

2010

B.E. (Civil)/Eighth Semester/Final

Time: 01 30 hrs.

Full Marks: 40 /Pass Marks: 16

BEG456CI: Disaster Management

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

All questions carry equal marks. Sketch neatly wherever necessary. Assume necessary data appropriately if required.

Answer FIVE questions.

1. How do natural disasters affect environment and development? Give your opinion whether development increases disaster risk or not. (8) 8

2. What are the different causes of flood? Discuss flood phenomena. comes 8

3. What is action plan? If you are appointed as a disaster manager, how do you prepare action plan for urban earthquake risk management? 8

4. What is landslide? List out and explain different counter measures to landslide in the context of Nepal. Explain with neat illustration wherever applicable. (8) 8

5. What is seismic risk? Explain pre-disaster initiatives and post-disaster management for earthquake disaster in Nepalese context. (8) 8

6. What is hazard? Explain briefly hazard assessment process. (8) 8

7. Write short notes any TWO:

- (a) Media control in disaster management
- (b) Disability issues in disaster management
- (c) Government regulation

2x4=8

PURBANCHAL UNIVERSITY
KANTIPUR COLLEGE
ASSESSMENT EXAMINATION - 2010

Level: BE (Civil)

Subject: BEG466C: Disaster Management

Full Marks: 40

Time: 01:30 Hrs.

Pass Marks: 16

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

Attempt Any FIVE Questions

Q. [1] In the recent news, it is said that in Iraq and Afghanistan War, several American Army after returning back from war someone has suicide and someone has killed their family in a dream as a result of Post Traumatic Disorder of War. Explain the effect and consequences of Post Traumatic Disorder of Disaster. [8]

OK

Disaster is an unplanned event so government fund, channel and process has important role in disaster management. Explain this with Nepalese government regulation and institutional arrangement. Do you think it is sufficient for proper disaster management? [8]

Q. [2] Among the different stages of Disaster Management which stage is more important in disaster management? what is the fundamental difference in the traditional and modern approaches of disaster management? [8]

Q. [3] Explain the assessment of the landslide and debris flow Hazards. Explain the flood disaster mitigation measures. [8]

Q. [4] What is the impact of disaster in Development Process of the country? Also explain its effect in environment. Which effect do you think severe, and why? [8]

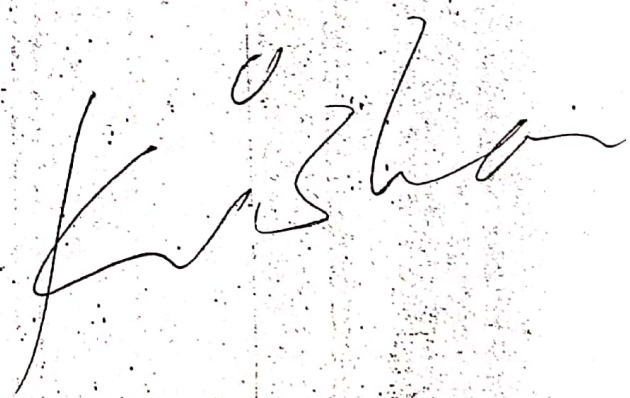
Q. [5] What do you mean by hazard identification and assessment? Explain the different hazard assessment approaches. [8]

Q. [6] What are the seismic hazards? Explain seismic risk and different strategies of seismic risk management. [8]

Q. [7] Training to people and media are an important component of disaster preparedness, Do you agree? explain the types of training that is essential for disaster management. [8]

Q. [8] Write Short notes (Any two) [2x4=8]

- Natural hazards and human intervention
- Importance of education in disaster management
- Problems for proper disaster management in Nepal
- Integrated Disaster Management Approaches



PURBANCHAL UNIVERSITY

2018

B.E. (Civil)/Eighth Semester/Final

Time: 03:00 hrs.

Full Marks: 80 /Pass Marks: 32

BEG499BE: Bio-Engineering (Elective-III) (New Course)

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

All questions carry equal marks. The marks allotted for each sub-question is specified along its side.

Answer FIVE questions.

- 1(a) Define Bio-engineering method for slope stabilization. What are the advantages and limitations of Bio-engineering method in slope stabilization? 2+6
- (b) What do you mean by Landslide mapping? Write down the steps of Landslide mapping with sketches. 2+6
- 2(a) Explain in brief about different types of rainfall hazards in relations to slope failures. 8
- (b) What are the basic ideal requirements of Plants? Explain about the Plant Propagation with its layout. 4+4
- 3(a) Explain in brief about the Mechanical effects of vegetation. 8
- (b) Explain about the importance of small scale civil engineering structures in bio-engineering method of slope stabilization. 8
- 4(a) Define Palisades. Explain the function, method of plantation and limitation of Palisades for slope stabilization. 2+6
- (b) Explain the process of selecting plant species on the basis of drought factor. 8
- 5(a) Explain different method of planting grass lines and their functions with suitable diagrams. 8
- (b) What do you mean by Nursery Techniques? Explain in brief, the management of Nursery. 2+6
6. Write short notes on any FOUR: 4×4=16
- (a) Selection of Optimal Techniques
- (b) Bio-engineering Programming
- (c) Distribution of Plant species in Nepal
- (d) Plant Engineering
- (e) Geological Study

Blender

PURBANCHAL UNIVERSITY

2017

B.E. (Civil)/Eighth Semester/*Final/Chance*

Time: 03:00 hrs.

Full Marks: 80 /Pass Marks: 32

BEG499BE: Bio-Engineering (Elective-III) (New Course)

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

All questions carry equal marks. The marks allotted for each sub-question is specified along its side.

Answer FIVE questions.

- 1(a) ✓ What is Bio-Engineering? Describe different bio-engineering functions to address the problems on slope? 8
- ✓ (b) Discuss the method of severity analysis of slope along with different factors considered in the process. 8
- 2(a) Describe the Geological framework of Nepal. 8
- (b) Differentiate between plant succession and regression with examples. Explain the process of natural succession towards climax community. 8
- 3(a) ✓ Differentiate between horizontal and vertical grass plantation in terms of their merits and demerits. Explain procedure of horizontal grass plantation. 4+4
- ✓ (b) Explain the purpose of brush layering, design criteria, material and construction procedure. 8
- 4(a) ✓ Explain the different role of vegetation on slop stabilization. 8
- ✓ (b) List out small civil engineering structures used in bio engineering and describe any two of them with their major functions. 8
- 5(a) ✓ What do you mean by drought? Describe procedure of selecting plant on the basis of draught factor. 8
- ✓ (b) What is Nursery? What are the major components of nursery? Explain briefly. 8
6. ✓ Write short notes on any FOUR: 4×4=16
- (a) ✓ Rock Cycle
- ✓ (b) Advantages of bioengineering
- ✓ (c) Run off related hazards
- ✓ (d) Mass Movement
- ✓ (e) Landslide mapping

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PURBANCHAL UNIVERSITY

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BEG499BE: Bio-Engineering (Elective-III) (New Course)

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

All questions carry equal marks. The marks allotted for each sub-question is specified along its side.

Answer FIVE questions.

- 1(a) Define Bio-engineering. Explain 3 different categories of Bio-Engineering method. What are the major limitations of Bio-engineering? 1+4+3
- (b) Describe about the main geological divisions of Nepal including main features and major rocks found in these region. 8
- 2(a) Explain Hydrological functions of plants. 8
- (b) Explain the major types of slope instability problems in Nepal. 8
- 3(a) Explain in brief function, site suitability, material and construction procedure of Live check dam. 8
- (b) Explain brief function, site suitability, and material construction procedure of Brush Layering. 8
- 4(a) Describe the major function, site suitability of the retaining wall and revetment wall? How retaining wall can be used along with bioengineering method. 3+3+2
- (b) Describe Engineering (Mechanical) function of vegetation. 8
- 5(a) Explain about the five factors considered in determining drought factor of the site. 8
- (b) Explain the preparation to be done to transport grass, pay pot, hard wood cutting to the bio-engineering sites from nursery. 8
6. Write short notes on any FOUR: 4×4=16
- (a) Nursery Shading
- (b) Interaction between civil and bio-engineering systems
- (c) Optimal techniques
- (d) Fascines

PURBANCHAL UNIVERSITY

2016

B.E. (Civil)/Eighth Semester/Final

Time: 03:00 hrs.

Full Marks: 80 /Pass Marks: 32

BEG499BE: Bio-Engineering (Elective-III) (New Course)

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

All questions carry equal marks. The marks allotted for each sub-question is specified along its side.

Answer FIVE questions.

- 1(a) What is Bio-engineering? Describe different application and limitations of bio-engineering. (b)
- (b) Describe the engineering function of plants to stabilize the face of shallow slope. 2(a)
- 2(a) Explain briefly different types of walls used in protecting slope for bio-engineering. (b)
- (b) Describe briefly the major geological thrust lines located in Nepal. 3(a)
- 3(a) What are the importance of stability analysis? How vegetation increases shear strength of soil? Derive. (b)
- (b) Explain the major purposes of cuttings that are used in bio-engineering techniques. 4(a)
- 4(a) Describe the procedure to select the optimum bio-engineering techniques. (b)
- (b) List out small civil engineering structures used in bio-engineering. Describe the criteria to select the retaining wall type. 5(a)
- 5(a) How do we maintain and take care of young plants? Explain briefly. (b)
- (b) What is Nursery? What are the major components of nursery? Explain briefly. (b)
6. Write short notes on any FOUR: 4×4=16
- (a) Interaction between Civil and Bio-engineering Systems
- (b) Problems in slope
- (c) Palisade
- (d) Random grass plantation.
- (e) Plate Tectonics

PURBANCHAL UNIVERSITY

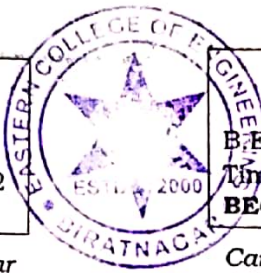
2014

B.E. (Civil)/Eighth Semester/Final

Time: 03:00 hrs.

Full Marks: 80 /Pass Marks: 32

BEG463CI: Bio-Engineering (Elective-II)



PURBANCHAL UNIVERSITY

2013

B.E. (Civil)/Eighth Semester/Final

Time: 03:00 hrs.

Full Marks: 80 /Pass Marks: 32

BEG463CI: Bio-Engineering (Elective-II)

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

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

All questions carry equal marks. The marks allotted for each sub-question is specified along its side. Assume any suitable data if necessary.

All questions carry equal marks. The marks allotted for each sub-question is specified along its side.

Answer FIVE questions.

Assume any suitable data if necessary.

- 1(a) Define infiltration. Describe various factors that affect infiltration? 3+5
- (b) Explain run-off generation. What are the hazards related to surface water movement? 3+5
- 2(a) Write the components of a landslide? Describe the procedure for mapping landslide. 3+5
- (b) What is igneous rock? Explain the diagnostic properties of igneous rock. 2+6
- 3(a) Explain the function, construction steps and its limitations of Fascines. 2+4+2
- (b) Define shrub, herbs and plant. What are the roles of plants on slope stabilization? 5+3
- 4(a) Explain the method of construction, advantages and disadvantages of gabion bloster. 4+2+2
- (b) What are the criteria for plant species selection for bio-engineering? Explain briefly? 6+2
- 5(a) What do you mean by nursery? Describe about the Nursery Management. 3+5
- (b) What is the maintenance of bio-engineering? Explain pruning and thinning of trees. 3+5
- 6. short notes on: 4x4 = 16
 - (a) Bio-engineering
 - (b) Slope instability
 - (c) Drought Factor
 - (d) Optimal Techniques

Answer FIVE questions.

- 1(a) What does bio-engineering do? What are the advantages and limitations for using bio-engineering techniques? 2+6
- (b) Describe the climatic model of Nepal and also mentions the local effects on climate. 5+3
- 2(a) Describe severity of instability and assessment of seriousness. Also mention the setting of priorities for repair with technical criteria for prioritization. 5+3
- (b) Explain engineering functions and hydrological effects of vegetation. 8
- 3(a) List down the various eco-climate zones found in Nepal along with altitude and forest types. 8
- (b) Describe the interaction between vegetation and civil engineering system with suitable graphs and examples. 8
- 4(a) What is the function and spacing of check dam for slope protection works? Elaborate on the integration of check dams with bio engineering techniques. 2+6
- (b) What are the components of a bio-engineering nursery? What are factors that need to be considered for nursery site selection? 3+5
- 5(a) What do you understand by routine and preventive maintenance in bio-engineering? Draw a calendar for bio-engineering maintenance operations. 3+5

Contd. ...

(2)

(b) Define landslide and write down its causes. How can the guidelines for the selection of optimal techniques be used in bio-engineering?

3+5

6. Write short notes on any FOUR:

4×4=16

(a) Brush Layering

(b) Factors affecting Infiltration

(c) Different Types of Rocks in Nepal

(d) Bamboo Plantation for bio-engineering

(e) Classification of Slope Based Upon Impact of Roots

(f) Land units of Nepal Himalaya

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PURBANCHAL UNIVERSITY

2013

B.E. (Civil)/Eighth Semester/Chance

Time: 03:00 hrs.

Full Marks: 80 /Pass Marks: 32

BEG463CI: Bio-Engineering (Elective-II)

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

All questions carry equal marks. The marks allotted for each sub-question is specified along its side.

Assume any suitable data if necessary.

Answer FIVE questions:

- 1(a) Define infiltration. Describe various factors that affect infiltration? Explain about pore water pressure. 2+4+2
- (b) Explain the main Soil-forming factors. Describe Colluvium and Alluvium. 4+4
- 2(a) Describe Climate of Nepal. Describe the various factors for determining Site Moisture and Temperature. 4+4
- (b) Describe the procedure for Mapping of Large and Complex Landslides. 8
- 3(a) Explain the function, materials, construction steps and limitations of Brush Layering. 8
- (b) What do you mean by Plant Forms and Structures? Describe about various resources for which the competition between plants takes place. 4+4
- 4(a) Explain the function, sites, comparisons of different Retaining Walls types and Integration of Retaining Walls with bio-engineering. 8
- (b) How do you choose the Right Bio-engineering techniques according to the Site Properties? 8
- 5(a) What do you mean by nursery? Describe about the Nursery Management. 3+5

Contd. ...

PURBANCHAL UNIVERSITY

2012

B.E. (Civil)/Eighth Semester/Final

Time: 03:00 hrs.

Full Marks: 80 /Pass Marks: 32

BEG463CI: Bio-Engineering (Elective-II)

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

All questions carry equal marks. The marks allotted for each sub-question is specified along its side.

Assume any suitable data if necessary.

Answer FIVE questions.

- 1(a) Define bio-engineering. What are the advantages and limitations for using bio-engineering? 2+6
- (b) Explain Landslide. Describe the procedure for mapping landslide, with sketch. 2+6
- 2(a) Explain run-off generation. What are the hazards related to surface water movement? 3+5
- (b) Define weathering of rock. What are different types of rocks? 2+6
- 3(a) Explain the function and spacing of check dam for slope protection. 3+5
- (b) Explain engineering functions and hydrological effects of vegetation. 4+4
- 4(a) Describe with a neat sketch various techniques of planted grass line for slope stabilization. 8
- (b) Describe climatic condition of Nepal. Point out main factors determining site moisture. 8
- 5(a) What do you mean by nursery establishment? How do you assess the quality of bio-engineering nurseries? 3+5
- (b) What are the criteria for plant species selection for bio-engineering? Explain briefly? 5+3
6. Write short note on: 4×4=16
- (a) Infiltration
- (b) Integration of civil and bio-engineering structures
- (c) Plant community
- (d) Maintenance of bio-engineering

PURBANCHAL UNIVERSITY

2012

B.E. (Civil/Computer/Electronics & Comm.)/Eighth Semester/Final
Time: 01:30 hrs. Full Marks: 40 /Pass Marks: 16
BEG459C1: Engineering Professional Practice

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

The figures in the margin indicate full marks. Assume any suitable data wherever necessary.

Answer FOUR questions. Q. (4) is compulsory.

1. Explain the roles of Engineers in the development activities. What are the major changes in society due to contribution of Engineers? Describe briefly. 5+5
- 2(a) Define Ethics and Profession with suitable examples. List out features of Profession. 3+3
- (b) Define Contract. Briefly explain essential elements of contract. 1+3
- 3(a) Write job description of an Engineer working in private sectors in Nepal. Give answer relevant to your discipline. 4
- (b) Describe different types of business enterprises including their characteristics and limitations. 6
4. An industry was using a chemical in making a product. The storage tank of the chemical waste, which was hazardous to health and environment, had a leakage. During inspection, Er. A came to know that leakage had already taken place that might affect health of the surrounding. You informed your boss about the event. Considering the possible social objection, he requests you to be silent on the issue. If the company need to face social objection due to you, you may be fired by your boss. If you were Er. A, what would you do? Describe the situation and your decision with reference to Engineering Ethics and Professional Code of Conduct. 10

Contd. ...

(2)

(b) Define Maintenance of bio-engineering? Describe Prevention of Maintenance of vegetation.

Write short notes on:

- (a) Engineering Functions of Vegetation
- (b) Integration of Civil and Bio-engineering Structures
- (c) Shrubs and Tree Planting
- (d) Hydrological Effects of Vegetation

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PURBANCHAL UNIVERSITY

2011

B.E. (Civil)/Eighth Semester/Chance

Time: 03:00 hrs.

Full Marks: 80 / Pass Marks: 32

BEG463CI: Bio-Engineering (Elective-I)

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

All questions carry equal marks. The marks allotted for each sub-question is specified along its side.

Assume any suitable data if necessary.

Answer FIVE questions.

5 x 16 = 80

- 1(a) Define bio-engineering. What are the advantages and limitations for using bio-engineering?
- (b) Explain Landslide. Describe the procedure for mapping landslide, with sketch.
- 2(a) Explain run-off generation. What are the hazards related to surface water movement?
- (b) Define weathering of rock. What are different types of rocks?
- 3(a) Explain the function and spacing of check dam for slope protection.
- (b) Explain engineering functions and hydrological effects of vegetation.
- 4(a) Describe with a neat sketch of various techniques of planted grass line for slope stabilization.
- (b) Describe climatic condition of Nepal. Point out main factors determining site moisture.
- 5(a) What do you mean by nursery establishment? How do you assess the quality of bio-engineering nurseries? *किसीप*
- (b) What are the criteria for plant species selection for bio-engineering? Explain briefly. *(class)*
- 6 Write short notes on any FOUR: 4x4=16
 - (a) Infiltration
 - (b) Integration of civil and bio-engineering structures
 - (c) Plant community
 - (d) Maintenance of bio-engineering

PURBANCHAL UNIVERSITY

2011

B.E. (Civil)/Eighth Semester/Final

Time: 03:00 hrs.

Full Marks: 80 / Pass Marks: 32

BEG463CI: Bio-Engineering (Elective-I)

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

All questions carry equal marks. The marks allotted for each sub-question is specified along its side.

Assume any suitable data if necessary.

Answer FIVE questions.

1. (a) What does Bio-engineering do? Where should bio-engineering be used? [3+5=8]
(b) Define filtration. What are the factors effecting on the filtration? [3+5=8]
2. (a) What are the mechanisms of landslide? Discuss with example.
(b) Explain the important of small scale civil engineering structure in bio-engineering. [8]
3. (a) Explain the geographical soil classification. How can coarse and fine soil grained soil be distinguished based on visual inspection. [5+3=8]
(b) What are the functions of surface and sub-surface drain? Which type of engineering structure suitable for the slope steeper than 45° [5+3=8]
4. (a) What types of grasses are selected according to the moisture condition? Justify with example. [8]
(b) Explain the function, method of operation, site selection and its limitation of Palisades. (fence) [8]
5. (a) What is the maintenance of bio-engineering? What are the general principles of vegetation maintenance? [3+5=8]
(b) Krishnabhir landslide at Benighat in Prithvi Highway was one of great problematic landslide in Nepal. What do you know about its landslide and usage of bio-engineering? [8]
6. Write short note on: [4x4=16]
 - (a) gully formation
 - (b) planted grass line
 - (c) cascading
 - (d) site assessment in landslide

PURBANCHAL UNIVERSITY

2018

B.E. (Civil)/Eighth Semester/*Chance*

Time: 01:30 hrs.

Full Marks: 40 /Pass Marks: 16

BEG456CI: Engineering Professional Practice (New Course)

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

The figures in the margin indicate full marks. Assume any suitable data wherever necessary.

Answer FOUR questions.

4×10=40

1(a) What do you mean by intellectual property? Differentiate between copyright and patent right.

(b) Differentiate between Nepal Engineering Council and Nepal Engineering Association.

2(a) Define profession and professionalism. Describe briefly the features of profession. Do you agree with the statement "Engineers are Professional"?

(b) Discuss about the Engineering Professional Practice in North America.

3(a) What is negligence? Why it is punitive as per prevailing law?

(b) Discuss the various type of liability and its consequences.

4(a) Describe general job description of engineers working in private sector.

(b) What is contract? Briefly explain the essential element of contract and also mention the condition of void contract as per Contract Act 2023.

5. Last year in rainy season, we observed a horrifying moment, a school girl fell down into open drain while crossing the flooded street at Samakhusi Kathmandu and alive immersed from an underwater sewer 30 meter far along the road. She was trying to cross the road but failed to notice open drain. Neither the drain was barricaded nor there did any board and signage for hazard.

Contd. ...

(2)

- (a) Discuss the role and responsibilities of Site engineer, Department of road, Kathmandu Metropolitan city, Council of ministry and Civil society.
- (b) What was the role of professional engineer in such construction work? Do you think that there was nonethical behaviour of professional engineer?
- (c) What are the preventive measures should take for public safety and non repetition of such horrifying event?

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PURBANCHAL UNIVERSITY

2018

B.E. (Civil)/Eighth Semester/Final

Time: 01:30 hrs.

Full Marks: 40 /Pass Marks: 16

BEG456CI: Engineering Professional Practice (New Course)

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

The figures in the margin indicate full marks. Assume any suitable data wherever necessary.

Answer FOUR questions. Q.N. (5) is compulsory. 4×10=40

1(a) Describe profession, professionalism and features of Professional with suitable examples. 5

(b) Discuss key roles of engineers in development activities. What functions an engineer can do in private sector? 2+3

2(a) Describe code of conduct for engineers developed by NEC in detail. 5

(b) What are the fundamentals canons for professional engineers? Explain. 5

3(a) Explain contract, engineering contract & elements of contract. 5

(b) How sealed quotation differs from sealed bidding? Explain in detail. 5

4(a) Describe intellectual property right. What are the elements of society. 4+1

(b) What is bid security & performance security? Define prequalification. 2.5+2.5

5. XYZ Engineering College has bought 1000 computer for computer lab which was procured through global tendering from ABC company. Out of total computer supplied 15 computers were not working. Extra money has been demanded by the company to fix the problem. The computers were received after the inspection by Mr. Ramesh from XYZ engineering college. Explain how the case can be settled by due regards. Highlighting your points in line with contract agreement, code of ethics and professionalism. 10

PURBANCHAL UNIVERSITY

2017

B.E. (Civil)/Eighth Semester/Final/Chance

Time: 01:30 hrs.

Full Marks: 40 /Pass Marks: 16

BEG456CI: Engineering Professional Practice (New Course)

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

The figures in the margin indicate full marks. Assume any suitable data wherever necessary.

Answer FOUR questions.

- 1(a) Define profession, professional, professionalism, ethics and moral. Also explain the key role of engineer in infrastructural development of any nation. 2.5+2.5
- 1(b) What are code of conduct for professional engineer prepared by NEC? Also describe the role of Nepal Engineering Council (NEC) in maintaining ethical standard of Nepalese Engineers. 2.5+2.5
- 2(a) What is engineering contract? Discuss the importance of contract and also mention essential of valid contract. 1+2+2
- 1(b) What are the method of work execution? Define sealed quotation and scaled bidding. 1+4
- 3(a) What do you mean by intellectual property right? Explain in detail about Trademarks, Copyrights and Patent rights with suitable examples. 1+4
- 1(b) What is job description? Mention the job description of a civil engineer working in a private construction consultancy. 1+4
- 4(a) Why prequalification is important? Explain. Define bid security and performance security. 2+3
- 1(b) As a fresh graduate, which type of business organization you would like-open and why? (sole or partnership); also differentiate between them. 1+4
5. Write short notes on any FOUR: 4×2.5=10
- (a) Labor Act 2048 and its objective
- (b) Fundamental canons for professional engineer
- (c) Elements of society
- (d) Engineering professional practice USSR and Eastern Europe
- (e) Tort liability, vicarious liability and Negligence

PURBANCHAL UNIVERSITY

2017

B.E. (Civil)/Eighth Semester/Final

Time: 01:30 hrs.

Full Marks: 40 /Pass Marks: 16

BEG456CI: Engineering Professional Practice (New Course)

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

The figures in the margin indicate full marks. Assume any suitable data wherever necessary.

Answer FOUR questions.

- 1(a) Explain the roles of Engineers in the development activities., 5
- (b) What are major elements of society, explain. Write in brief on EPP in Europe? 3+2
- 2(a) Briefly explain the codes of conduct of NEC? 5
- (b) What is contract? Define the essentials of valid contract. 5
- 3(a) Why prequalification is important in contract? Define bid security and performance security. 5
- (b) Describe the general job description of the engineers working in the private sectors (consultant and contractor). 5
- 4(a) Discuss types of business. 5
- (b) Define IP, IPR, Patent right, copy right and Trademarks. 5
5. Mr. Narendra is a municipal engineer and a member of regional planning board. He also engages in a part time consulting practice. As a consulting engineer, he prepared the plans for the sub division development. As a municipal engineer, he recommended approval of his plans to the regional planning board. As a member of regional planning board, he voted to approve these plans.

Discuss his acts with reference to ethics of professional and code of conduct. 10

PURBANCHAL UNIVERSITY

2016

B.E. (Civil)/Eighth Semester/Final

Time: 01:30 hrs.

Full Marks: 40 /Pass Marks: 16

BEG456CI: Engineering Professional Practice (New Course)

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

The figures in the margin indicate full marks. Assume any suitable data wherever necessary.

Answer FOUR questions.

- 1(a) Define profession and professionalism and explain the key roles of engineer's in development activities. 2.5+2.5
- (b) What are the engineering practices in eastern and western society practice? 5
- 2(a) What are the contract and void contract? 2.5+2.5
- (b) How can you prepare the tender document before inviting tender? 5
- 3(a) What is liability and negligence? Explain the selection criteria of contractors. 2+2
- (b) What is a job description? Explain the job description of an engineer working in public sector. 2+4
- 4(a) Explain engineering professional practice in USSR and Eastern Europe. 5
- (b) Explain the issues on an engineering professional ethics. 5
- 5. Write short note on any FOUR: 4*2.5=10
 - (a) Law of ethics in Engineering Practice
 - (b) Intellectual property right
 - (c) Society
 - (d) Prequalification works of contractor
 - (e) Engineers in international development

PURBANCHAL UNIVERSITY

2016

B.E. (Civil)/Eighth Semester/Chance

Time: 01:30 hrs.

Full Marks: 40 /Pass Marks: 16

BEG456CI: Engineering Professional Practice (New Course)

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

The figures in the margin indicate full marks. Assume any suitable data wherever necessary.

Answer FOUR questions. Q. No. (5) is compulsory.

- 1. How is ethics different from morals? Elaborate about the ethics affecting ethical behaviour of an engineer. (b)
- 2. Discuss about the jurisdiction areas of Nepal Engineering Council. Explain the course of disciplinary actions of NEC. 2(a)
- 3. Explain the prequalification works of contractors engineering professional practice in Western Europe and America. (b)
- 4. Define professionalism. Discuss about the job description of professional engineers in Public Sector of Nepal. (a)
- 5. Engineer Amar is the representative of Employer in a Project has prepared the final draft of the Contract between Employer and Contractor. Since the Contract has been prepared required by the Employer Amar is well aware of the clauses which are in favour of the Employer but against the Contractor. Should Engineer Amar inform the contractor before the signing of the contract? (b)

External law
 → Universalisation
 → Utility law
 → Personal performance
 → Different the Justice
 → Disubutic

PURBANCHAL UNIVERSITY

2015

B.E. (Civil)/Eighth Semester/*Final*

Time: 01:30 hrs.

Full Marks: 40 /Pass Marks: 16

BEG456CI: Engineering Professional Practice (New Course)

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

The figures in the margin indicate full marks. Assume any suitable data wherever necessary.

Answer FOUR questions. Q. No. (5) is compulsory.

- 1(a) Define Profession/Professional, Professionalism and describe features of Professionalism with suitable examples. 5
- (b) Describe the role of engineers working in private sectors. 5
- 2(a) Explain moral and ethics in engineering profession. Describe all the five law of ethics giving suitable examples. 5
- (b) Explain what are the roles of engineers in development activities. 5
- 3(a) Define Contract, elements of contract and types of contract. 5
- (b) Explain tender and tendering process in detail. 5
- 4(a) Explain Tort liability, its elements, types of negligence and liabilities giving suitable examples. 5
- (b) Describe Patent, Copy right and Trade mark in detail giving suitable examples. 5
5. An engineering college has bought 1000 computers for use in computer lab which was procured through global tendering from ABC Company in Hyderabad. Out of total computers supplied 15 computers are not working and extra money is demanded by the company for making them servable. As the computers were received after the inspection by Mr. Ramesh. How the case can be settled by taking due regards. 10

PURBANCHAL UNIVERSITY

2014

B.E. (Civil/Computer/Electronics & Comm.)/Eighth Semester/ Final

Time: 01:30 hrs.

Full Marks: 40 / Pass Marks: 16

BEG459CI: Engineering Professional Practice

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

The figures in the margin indicate full marks. Assume any suitable data wherever necessary.

Answer FIVE questions. Q. (5) is compulsory.

OFC 3 PCW

1. What are the key role of engineers in the development activities? 6
2. What are difference between contract and agreement and explain the preparation of contract documents. 5
3. Explain the function and role of engineering council of Nepal and Engineering Association of Nepal. 5
4. What is intellectual property? Explain the copy right, patent right and trade marks. 5
5. A road project was completed and handed over in the last month. Though there was still six months liability period, but there occurred an accident because of the heap of debris at the road side. The vitim sued the road department bar their negligence in clearing for the dameges occurred. Discuss the situation, identify the liability and find out the exact wrong doer. 6
6. Write shorts an any TWO:
 - (i) Tendering process
 - (ii) Elements of Society
 - (iii) Liability and negligence

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

The figures in the margin indicate full marks. Assume any suitable data wherever necessary.

Answer ALL questions.

4×10=40

- (a) Discuss the relationship between a society and an engineer. 5
- (b) Define Negligence, tort and liability. Add suitable examples. 5
- a) Differentiate profession from a job. Discuss engineering as a profession. 1+4
- b) Explain role of Nepal Engineering Council for maintaining the quality of engineers in Nepal. 5
- a) Explain the job to be done by a civil engineer working in government job of Nepal. 5
- b) Briefly describe major provisions in Labor Act 2048. 5

You are the Senior Engineer of cement factory located in a metropolitan city. You are supposed to monitor and report the level of pollution of the surrounding areas due to dust particles. You found that pollution level has exceeded the permissible limit and it would have negative impact on the health of the people residing nearby. If you report accurate dust level and suggest the installation of dust control plant, it would cost a lot and the factory would not be able to produce cost effective cement bags.

10

What would you do? Discuss.

Contd. ...

(2)

4×2.5=10

4. Write short notes on any FOUR:

(a) Tendering

(b) Objectives and role of Nepal Engineers' Association

(c) Patent

(d) Partnership business

(e) Individual freedom and societal goal

[Handwritten scribbles]

PURBANCHAL UNIVERSITY

2013

B.E. (Civil/Computer/Electronics & Comm.)/Eighth Semester/Chance

Time: 01:30 hrs.

Full Marks: 40 /Pass Marks: 16.

BEG459CI: Engineering Professional Practice

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

The figures in the margin indicate full marks. Assume any suitable data wherever necessary.

Answer FOUR questions. Q. (5) is compulsory.

- 1(a) What is profession and professionalism? Describe the features of profession. 5
- (b) Define ethics. What is moral & non-moral action? 5
- 2(a) What do you mean by contract? Describe its types and elements. 5
- (b) Write briefly on earnest money, security deposits and prequalification in contract procedures. 5
- 3(a) Write job description of engineers working in public sectors. 5
- (b) Explain code of ethics for professional engineers developed by Nepal engineering council (NEC). 5
- 4(a) Explain fundamental canons for professional engineers. 5
- (b) Describe engineering professional practices in Western Europe. 5
5. Because of population from different sources, the transport service in Kathmandu has become very tedious. Passengers have to wait for long. But as the government allowed running Microbuses on different routes because of road widths, people's participation and people's facilities, people find some kind of support, but because of numbers of micro bus increases, the roads, the environment and the thieves spread like a plague. The government could provide public buses that can carry a lot more number of people at a time in single shift loss bus runs and thereby lessening bus-fumes.
Q. Discuss whether the increase of microbus was right decision of the government instead of public buses. 10

PURBANCHAL UNIVERSITY

2013

B.E. (Civil/Computer/Electronics & Comm.)/Eighth Semester/Final

Time: 01:30 hrs.

Full Marks: 40 / Pass Marks: 16

BEG459CI: Engineering Professional Practice

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

The figures in the margin indicate full marks. Assume any suitable data wherever necessary.

Answer FOUR questions. Q. (5) is compulsory.

1. What are the objectives of Nepal Engineering Council? Explain the types of engineers registered in the council. 9 10 3+5
2. What are the fundamental canons for professional engineers? When do professionals loose professionalism? Explain in your words. 3 3+5
3. Suppose you are going to establish your own business enterprises after completing B. E. which type you prefer and why? Give its advantages over other types. 8
4. Define contract and security deposit. Explain double envelope tendering procedure. 2 3+6
5. A lecturer prepares a note on his subjects and teaches the same for seven years with sufficient timely updating. At the end of the seventh year he leaves the college for further study leaving his notes to the next person replacing him. Now the new lecturer with a few changes on the previous lecturer's note publishes a text book on his name. Later, he comes back from his higher study; he finds that his notes have been published in a text book form under the following lecturer's name. He raises the voices against the following lecturer about the text book, because the book plays a vital role in getting promotion in the college. Discuss the issue with reference to the Engineering code of Ethics, Professionalism and Copy rights. 8

PURBANCHAL UNIVERSITY

2012

B.E. (Civil/Computer/Electronics & Comm.)/Eighth Semester/Final
Time: 01:30 hrs.

Full Marks: 40 / Pass Marks: 16

BEG459CI: Engineering Professional Practice

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

The figures in the margin indicate full marks. Assume any suitable data wherever necessary.

Answer FOUR questions. Q. (4) is compulsory.

1. Explain the roles of Engineers in the development activities. What are the major changes in society due to contribution of Engineers? Describe briefly. 5+5
- 2(a) Define Ethics and Profession with suitable examples. List out features of Profession. 3+3
- (b) Define Contract. Briefly explain essential elements of contract. 1+3
- 3(a) Write job description of an Engineer working in private sectors in Nepal. Give answer relevant to your discipline. 4
- (b) Describe different types of business enterprises including their characteristics and limitations. 6
4. An industry was using a chemical in making a product. The storage tank of the chemical waste, which was hazardous to health and environment, had a leakage. During inspection, Er. A came to know that leakage had already taken place that might affect health of the surrounding. You informed your boss about the event. Considering the possible social objection, he requests you to be silent on the issue. If the company need to face social objection due to you, you may be fired by your boss. If you were Er. A, what would you do? Describe the situation and your decision with reference to Engineering Ethics and Professional Code of Conduct. 10

Contd. ...

(2)

2.5×4=10

5. Write short notes on any FOUR:

- (a) Earnest money
- (b) Vicarious liability
- (c) Nepal Engineering Council
- (d) Copy rights
- (e) Provisions in Labor Act 2048
- (f) Fundamental canon for Engineers

PURBANCHAL UNIVERSITY

2011

B.E. (Civil/Computer/Electronics & Comm.)/Eighth Semester/Final

Time: 01:30 hrs.

Full Marks: 40 /Pass Marks: 16

BEG459CI: Engineering, Professional Practice

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

The figures in the margin indicate full marks.

Answer FOUR questions. Q. (5) is compulsory.

1. What is the role of an engineer in society? Briefly explain the job description of an engineer working in public sector in Nepal. (4+6)
2. What is tort liability? Explain the major concerns of labour law of Nepal. (2+8)
3. (a) Define an engineering profession. List the fundamental code of ethics that should be followed by the engineers. (2+3)
(b) Explain the process of tendering in engineering projects. [5]
4. (a) What is patent right and trademark. Briefly explain the terms of patent. (2+3)
(b) Differentiate Nepal Engineering Council from Nepal Engineers' Association in reference of formation and functions. (5)
5. Gita a communication engineer and Pratap a civil engineer both slipped on the floor of the building during their inspection visit which was under construction, causing serious injury. During investigation it was found that the floor was not constructed as per design and specification so it was slippery. The flooring work was done by sub contractor Shrestha on recommendation of engineer Gita. Discuss the case with reference to ethics of professional. (10)

PURBANCHAL UNIVERSITY

2018

B.E. (Civil)/Eighth Semester/Final

Time: 03:00 hrs.

Full Marks: 80 / Pass Marks: 32

BEG469SW: Solid Waste Management (Elective-II) (New Course)

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

All questions carry equal marks. The marks allotted for each sub-question is specified along its side. Assume necessary data appropriately if required.

Answer FIVE questions.

- 1(a) Define Solid wastes. Explain the functional elements of ISWM. 2+6
- (b) Explain the history of development of solid waste management in Nepal. 8
- 2(a) List out the major properties of the solid wastes. Explain the physical and chemical properties of the solid waste. 1+7
- (b) How is heat value of solid waste calculated? Calculate the heat value of PVC. *12.01, 1.01, 35.45* 2+6
- 3(a) What is the area required for land filling the waste of Kathmandu if the per capita waste generation is 300g (1 liter per capita by volume as discarded) and average projected population is 16,00,000 for one decade. Calculate the area required if 25% of the waste produced per capita is added for commercial and other wastes and 85% of the waste is expected to reach the landfill site. The density of waste after compaction in the landfill is expected to be 550 kg/m³. It is estimated that there will be 7 cells in 1 lift of 6 m including daily cover height of 15 cm and intermittent cover of 30 cm. The landfill allows maximum of 7 lifts. The landfill site is run for 6 days a week. 8
- (b) Define transfer station. As a planner where and when transfer station should be proposed? 8
- 4(a) Explain different types of land filling methods with diagram: 8
- (b) Calculate the overall moisture content and overall density of the waste components given below: 8

Contd. ...

(2)

Components	Mass (kg.)	Density (Kg/m ³)	Moisture (%)	% by mass (dry basis)				
				C	H	O	N	S
FOOD WASTE	72	330	68	55	6.7	38	2	0.6
PAPER	9	90	3	46	6	44	0.3	0.2
PLASTIC	11	62	6	64	7.2	31.5	0	0
RUBBER	3	110	4	52.8	12	0	1.9	0
WOOD	3.5	280	18	42	8	43	0.3	0.13
TEXTILES	1.5	53	19	57	7	30	4.8	0.18

5(a) Solid waste from Baner, Ktm is collected in HCS basis using hoist truck. Time taken to reach the first container site from the garage is 30min. and to the garage from the last location is 45min. If the average time required to drive between containers is 5min. and one way distance to the disposal site is 20 km (speed limit 40 kmph); determine number of containers that can be emptied per day based on 8 hr/d working schedule. What would be the amount of waste that can be collected in a day by this truck if the 4m³ containers are in an average 3/4th full. 10

(b) What is composting? Discuss on the different types of composting. 1+5

6. Write short notes on any FOUR: 4×4=16

(a) Hazardous waste

(b) Incinerator

(c) Biological decomposition process of MSW

(d) Climate change and landfill sites

(e) Leachate



Boher

PURBANCHAL UNIVERSITY

2017

B.E. (Civil)/Eighth Semester/*Final/Chance*

Time: 03:00 hrs.

Full Marks: 80 /Pass Marks: 32

BEG469SW: Solid Waste Management (Elective-II) (New Course)

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

All questions carry equal marks. The marks allotted for each sub-question is specified along its side. Assume necessary data appropriately if required.

Answer FIVE questions.

- 1(a) Define Integrated Solid Waste Management. Discuss hierarchy of integrated solid waste management. 8
- (b) Write different types of solid waste. Which method you prefer to collecting solid waste in Kathmandu valley? Give your justification to the choice. 8
- 2(a) Write different properties of solid waste in municipal area. 6
- 2(b) A typical distribution of waste components of MSW generated by a residential community is as follows; 5+5

Components	% by weight
Food waste	60
cardboard	4
Paper	5
Plastic	6
Fabric	2
Rubber	3
wood	2
glass	4
Yard waste	14
Total	100

Determine; *51.76%*

152 kg/m³

- (a) Overall moisture content (b) Overall density of waste sample
- 3(a) Discuss the different stage of biological decomposition process, with relevant equations that take place in landfill. 8
- (b) What is compactor size required to haul waste from a residential community with following details; 8

Contd. ...

(2)

- Container size (c) = 0.25m^3
- Container utilization factor = 0.72
- Avg. no. of container in each station = 2
- Collection vehicle compaction ratio = 2.5
- Container unloading time $U_c = 5 \text{ min/container}$
- Two-way haul distance $x = 25\text{km}$
- Speed limit = 35km/hr
- Length of workday $H = 8\text{hr}$.
- Average driving time between the containers = 6 minutes

4(a) ✓ The chemical formula of PVC is $\text{C}_2\text{H}_3\text{Cl}$. What would be the heat value of PVC? $C = 39.7\%$, $H = 1.7\%$, 15806.5 kJ/kg ⁶

4(b) ✓ What is the area needed for land filling the waste if the per capita waste generation is 250g (1 liter per capita by volume as discarded) and average projected population is 800000 for one decade. Calculate the area required if 20% of the waste produced per capita is added for commercial and other waste and 80% of the waste is expected to reach the landfill site. The density of the waste after compaction in the landfill is expected to be 500kg/m^3 .

It is estimated that there will be 5 cells in one lift of 5m including daily cover height of 15cm and intermittent cover of 30cm. The landfill allows maximum of 5 lifts. The landfill site is run for 6 days a week. 6840 m^2 10

5(a) ✓ What are the different components involved in planning, designing, and operation of landfill? What are the criteria for landfill site selection? 8

5(b) ✓ State the different methods of resource recovery. Discuss about recycling of organic waste in Kathmandu. 8

6. Write short notes on any FOUR:

- ✓ (a) Source of solid waste
- ✓ (b) Hazardous waste
- ✓ (c) Solid waste management in Nepal
- ✓ (d) Transfer station
- ✓ (e) Incineration
- (f) Factor affecting waste gen

$4 \times 4 = 16$

~

PURBANCHAL UNIVERSITY

2017

B.E. (Civil)/Seventh Semester/Final

Time: 03:00 hrs.

Full Marks: 80 /Pass Marks: 32

BEG469SW: Solid Waste Management (Elective-I) (New Course)

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

All questions carry equal marks. The marks allotted for each sub-question is specified along its side.

Answer FIVE questions.

5×16=80

- 1(a) Prepare a brief chronology of development of waste management practices exercised in Nepal. 8
- (b) What is solid waste? What are the various methods of collecting solid waste? Recommend one system you think is suitable for Kathmandu valley. Give your justification to the choice. 8
- 2(a) What are the source of solid waste? Describe. 6
- (b) A typical distribution of waste components of MSW generated by a residential community is as follows:

Components	% by weight
Food waste	60
cardboard	4
Paper	10
Plastic	6
Fabric	2
Rubber	3
wood	2
glass	3
Yard waste	10
Total	100

Determine:

- (a) Overall moisture content
- (b) Overall density of waste sample
- (c) Approximate chemical formula
- 3(a) Discuss the different stage of biological decomposition process, with relevant equations that take place in landfill. 8

Contd. ...

(2)

(b) Determine the number of container that can be emptied per day using haul container collection. The data available for analysis are as follows: 8

- Time to drive from garage to first container= 22 mins
- Time to drive from last container to garage= 20 mins
- Total time required to pickup loaded container and unload empty container= 0.4hr/trip
- Average time required to drive between container= 12 mins
- One way distance to disposal site= 25 km
- Speed limits= 88km/hr
- $S=0.12\text{hr/trip}$; $a=0.016\text{ hr/trip}$; $b=0.011$; $W=0.15$
- Length of working days= 8 hr/day

4(a) The chemical formula of Ethanol is $\text{CH}_3\text{CH}_2\text{OH}$. What would be the heat value of ethanol? 6

(b) What is the area needed for land filling the waste of Kathmandu if the per capita waste generation is 25g (1 liter per capita by volume as discarded) and average projected population is 800000 for one decade. Calculate the area required if 20% of the waste produced per capita is added for commercial and other waste and 80% of the waste is expected to reach the landfill site. The density of the waste after compaction in the landfill is expected to be 500kg/m^3 . It is estimated that there will be 5 cells in one lift of 5m including daily cover height of 15cm and intermittent cover of 30cm. The landfill allows maximum of 5 lifts. The landfill site is run for 6 days a week. 10

5(a) What are the different components involved in planning, designing, and operation of landfill? What are the criteria for landfill site selection? 8

(b) What is composting? Describe the different types of composting practices that are used in Nepal. 8

6. Write short notes on:

- (a) Hazardous waste
- (b) Collection services
- (c) Transfer station
- (d) Resources recovery

4×4=16



PURBANCHAL UNIVERSITY

2017

B.E. (Civil)/Eighth Semester/*Final*

Time: 03:00 hrs.

Full Marks: 80 /Pass Marks: 32

BEG469SW: Solid Waste Management (Elective-II) (New Course)

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

All questions carry equal marks. The marks allotted for each sub-question is specified along its side. Assume necessary data appropriately if required.

Answer FIVE questions.

- 1(a) Discuss the development phases of solid waste management in Nepal. Show the various stages of waste management hierarchy. 5+3
- (b) What is solid waste? What are the various methods of collecting solid waste? Recommend one system that you think is suitable for Kathmandu valley. Give your justification to the choice. 1+1+6
- 2(a) What are the sources of solid waste? Illustrate the properties of solid waste briefly. 2+6
- (b) A typical distribution of waste components of MSW generated by a residential community is as follows; 4+4

Components	% by weight
Food waste	60
cardboard	4
Paper	10
Plastic	6
Fabric	2
Rubber	3
wood	2
glass	3
Yard waste	10
Total	100

Determine;

- (a) Overall moisture content
- (b) Overall density of waste sample
- 3(a) What are the factors affecting waste generation rates; explain shortly. 6

Contd. ...



(2)

- (b) Determine the number of container that can be emptied per day using haul container collection system. The data available for analysis are as follows; 10

Time to drive from garage to first container=22 mins

Time to drive from last container to garage =20 mins

Total time required to pick up loaded container and unload empty container= 0.4hr/trip

Average time required to drive between container=12 mins

One-way distance to disposal site =25 km

Speed limits=88km/hr

S=0.12hr/trip; a=0.016hr/trip; b= 0.011; W=0.15

Length of working days=8hr/day

- 4(a) Define Composting and write factor affect the composting. 6

- (b) What is the area needed for land filling the waste if the per capita waste generation is 260g (1 liter per capita by volume as discarded) and average projected population is 1000000 for one decade Calculate the area required if 25% of the waste produced per capita is added for commercial and other waste and 80% of the waste is expected to reach the landfill site. The density of the waste after compaction in the landfill is expected to be 500kg/m³.

It is estimated that there will be 5 cells in one lift of 5m including daily cover height of 15cm and intermittent cover of 30cm. The landfill allows maximum of 5 lifts. The landfill site is run for 6 days a week. 10

- 5(a) What are the different components involved in planning, designing, and operation of landfill? What are the criteria for landfill site selection? 8

- (b) The chemical formula of Ethanol is CH₃CH₂OH. What would be the heat value of ethanol? 8

6. Write short notes on any FOUR: 4×4=16

- (a) Role of Environmental Engineer
(b) Transfer station
(c) Incineration
(d) Global Environmental Issues
(e) Gas Generation and Management
(f) Materials recovery facilities (MRF)



PURBANCHAL UNIVERSITY

2016

B.E. (Civil)/Seventh Semester/Chance

Time: 03:00 hrs.

Full Marks: 80 /Pass Marks: 32

BEG469SW: Solid Waste Management (Elective-I) (New Course)

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

All questions carry equal marks. The marks allotted for each sub-question is specified along its side.

Answer FIVE questions.

5×16=80

- 1(a) Explain the Hierarchy of Integrated Solid Waste Management with necessary sketches. 8
- (b) Describe different categories of solid wastes. 8
- 2(a) What are the major problems encountered in solid waste management system in Nepal. 6
- (b) Estimate the energy content of a solid waste sample with composition in Table 1. Use Table 2 to find typical values. What will be the energy content in dry basis? 5+5

Table 1

Component	% by mass
Food waste	45
Paper	25
Plastics	15
Wood	10
Tin Cans	5

Table 2

Component	Typical Moisture %	Typical Energy KJ/kg
Food waste	70	4650
Paper	6	16750
Plastics	2	32600
Wood	20	18600
Tin Cans	0	700

Contd. ...

(2)

- 3(a) Explain about the general process of landfill site selection. 8
- (b) Describe different methods adopted for recycling and recovery of inorganic solid wastes in Nepal. 8
- 4(a) What is leachate and how it is managed in landfills? 8
- (b) Describe different types of collection services used. What type of collection system do you prefer in Kathmandu Valley? 8
- 5(a) Explain briefly about the sampling of municipal solid waste. 6
- (b) How much landfill space is required for your city for 25 years of operation? The annual solid waste generation is 1000 tonnes. The characteristics of landfill are as follows. 10

1	Mean density of uncompacted waste	110 kg/m ³
2	Compaction ratio	4.23
3	Lift height	2.8 m
4	Soil cover	0.17 m (daily)
5	Waste layer spread for compaction	0.3 m
6	Final cover	0.7 m
7	Cover between lift	0.35 m
8	Workday	5 days a week
9	No. of stack (lift) after closure	3

Assume other data if necessary.

6. Write short notes on any FOUR: 4×4=16
- (a) Water balance in landfills
- (b) Incineration
- (c) Design consideration of transfer stations
- (d) Onsite management of municipal solid waste
- (e) Composting

PURBANCHAL UNIVERSITY

2017

B.E. (Civil)/Eighth Semester/Final/Chance

Time: 03:00 hrs.

Full Marks: 80 /Pass Marks: 32

BEG469TE: Traffic Engineering Management (Elective-II) (New Course)

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

The figures in the margin indicate full marks. The marks allotted for each sub-question is specified along its side. Assume necessary data suitably.

Answer FIVE questions.

1(a) Define traffic volume? Describe how do you analyze traffic volume data. 4+4

(b) Speed observations from a radar speed meter have been taken, giving the speed of the subsidiary streams composing the flow along with the volume of traffic on each subsidiary stream. The reading are as under: 8

Speed range	2-5	6-9	10-13	14-17	18-21	22-25	26-29	30-33	34-37
Volume	1	4	0	7	20	80	82	79	49

Calculate:

(i) Time mean speed

(ii) Space mean speed

(iii) Variance about space mean speed

2(a) Four vehicles 6, 6.5, 6.75 and 6.9m long are distributed over a length of tree way lane 200m long. What is the lane occupancy, average headways, spacing, clearance, gaps and density? 10

(b) Define traffic capacity and explain the types of traffic capacity in brief. 2+4

3(a) Define level of service? What are the factors to be considered to evaluate the level of service? 8

(b) What are the major parking problems in Nepal? Enlist the methods of parking surveys? 4+4

4(a) What are the causes of accidents in Nepal? What are the various steps involved in accident studies? 2+4

(b) A fixed time 2-phase signals is to be provided at an intersections having four arms. The design hour traffic and saturation flow are as under? 10

Contd. ...

(2)

	North (N)	South (S)	East (E)	West (W)
Design Hour flow	800	400	750	600
Saturation flow	2400	2000	3000	3000

The time lost per phase due to starting delays is 2 seconds. Calculate the optimum cycle time. Allocate the green times to the two phases. Draw phase diagram.

5(a) Explain the types of parking facilities? 8

(b) Define traffic signal progression with their types, briefly. 8

6. Write short notes on any FOUR: 4×4=16

(a) Model Validation

(b) Tidal-flow operations

(c) Interrupted flow

(d) National Transport Policy

(d) Fuel efficiency

~~control method based on traffic flow~~

W/ 7.11.12

8

PURBANCHAL UNIVERSITY

2017

B.E. (Civil)/Eighth Semester/Final

Time: 03:00 hrs.

Full Marks: 80 / Pass Marks: 32

BEG469TE: Traffic Engineering Management (Elective-II) (New Course)

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

The figures in the margin indicate full marks. The marks allotted for each sub-question is specified along its side. Assume necessary data suitably.

Answer FIVE questions.

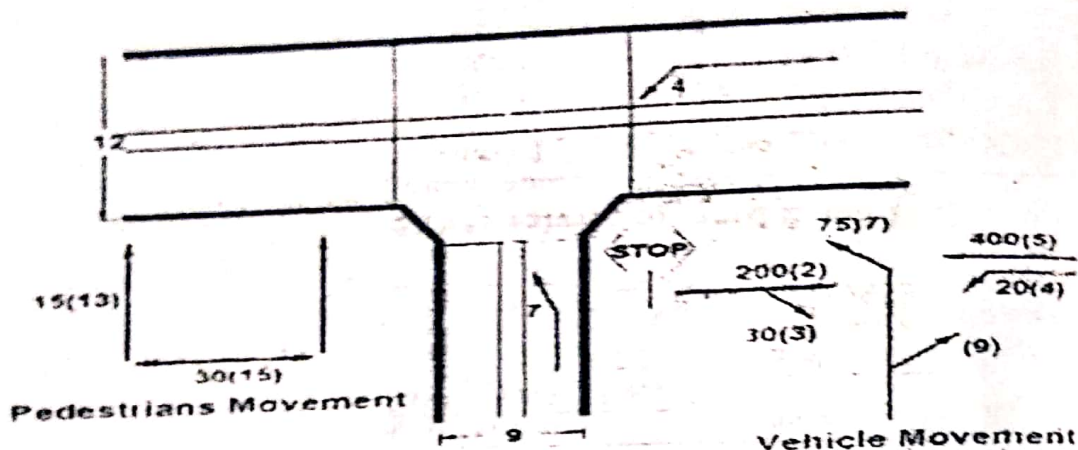
- 1(a) Describe scope and significance of Traffic Engineering Management. Describe traffic related problems in major cities. 4+4
- (b) Assuming a linear speed-density relationship, the mean free speed is observed to be 85km/hr near zero density the corresponding jam density is 140 veh/km. Assume average length of vehicle as 6m. Write down speed density and flow density equation. 8
- Draw the v-k, v-q and q-k diagram. Indicate critical values.
- 2(a) Explain different traffic management measures in urban traffic planning. 8
- (b) What are different types of speed? Describe method conducting speed studies. 2+6
- 3(a) In the adjoining figure; the amount of volume for the pedestrian, vehicles and width lane (m) at each movement are given. Taking the following: 10
- Speed of pedestrian=1.2 m/s
 - 8% of truck volume
 - Grade % = 0
- Determine:
- (i) Potential capacity of movement 7
 - (ii) Movement capacity
 - (iii) Control delay and LOS of movement 7
- Take $t_{cb}=7.5\text{sec}$, $t_{cg} = 0.2$, $t_{ct}=1$, $t_{ct}=0.7$; $t_{fb}=3.5\text{ s}$; $t_{fbv}=1$

Table 4: Level of service criteria for TWC intersection

Level of Service	Control delays(s/veh)
A	0-10
B	> 10-15
C	> 15-25
D	> 25-35
E	> 35-50
F	> 50

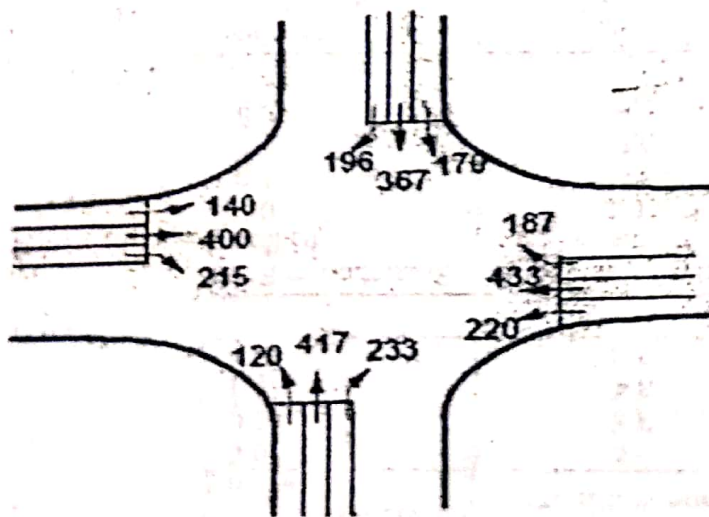
Contd. ...

(2)



- (b) Describe different types of accident statistics. 6 ✓
- 4(a) Describe factors affecting capacity and Level of service of highway. 8 ✓
- (b) Describe different types of parking facilities. 8 ✓

5(a) The traffic flow for a four-legged intersection is as shown in figure. Given that the lost time per phase is 2.4 seconds, saturation headway is 2.2 seconds, amber time is 3 seconds per phase, find the cycle length, green time and performance measure (delay per cycle). Assume critical V - c ratio as 0.9. 8 ✓



- (b) Enumerate the measures to curtail environmental degradation due to traffic? 8

6: Write short notes on any FOUR:
(a) Traffic planning and modeling
(c) Traffic management in Nepal
(e) Signal Coordination methods

(b) Types of traffic volume 4x4=16 ✓
(d) Headways and gaps

(4)

Table 1.

Lane Width (m)	Reduction in Free-Flow Speed, f_{ww} (km/h)
3.6	0.0
3.5	1.0
3.4	2.1
3.3	3.0

Interchanges per kilometer	Reduction in Free-Flow Speed, f_{oi} (km/h)
≤ 0.3	0.0
0.4	1.0
0.5	2.1
0.6	3.9

Right Shoulder Lateral Clearance (m)	Reduction in Free Flow Speed f_{cs} (km/h)			
	Lanes in One Direction			
	2	3	4	≥ 5
≥ 1.8	0.0	0.0	0.0	0.0
1.5	1.0	0.7	0.3	0.2
1.2	1.9	1.3	0.7	0.4
0.9	2.9	1.9	1.0	0.6

Number of Lanes (One Direction)	Reduction in Free-Flow Speed, f_n (km/h)
≥ 5	0.0
4	2.4
3	4.8
2	7.3

Factor	Type of Terrain		
	Level	Rolling	Mountainous
Trucks and Buses	1.5	2.5	4.5
PV's	1.2	2.0	4.0

Table 2 Level of service criteria for TWSC

Level of Service	Control delays (s/veh)
A	0-10
B	>10-15
C	>15-25
D	>25-35
E	>35-50
F	>50

PURBANCHAL UNIVERSITY

2016

B.E. (Civil)/Eighth Semester/Chance

Time: 03:00 hrs.

Full Marks: 80 /Pass Marks: 32

BEG469TE: Traffic Engineering Management (Elective-III) (New Course)

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

The figures in the margin indicate full marks. The marks allotted for each sub-question is specified along its side. Assume necessary data suitably.

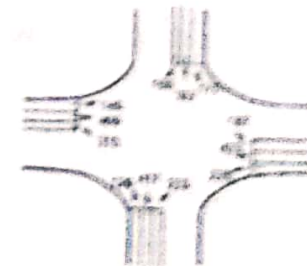
Answer FIVE questions.

1(a) Describe about Travel demand forecasting. 8

(b) From an in-out survey conducted for a parking area consisting of 40 bays; the initial count was found to be 25. Table gives the result of the survey. The number of vehicles coming in and out of the parking lot for a time interval of 5 minutes is as shown in the table. Find the accumulation, total parking load, average occupancy and efficiency of the parking lot. 8

In-out survey data	Time	5	10	15	20	25	30	35	40	45	50	55	60
	In		3	2	4	5	7	8	2	4	9	4	7
Out		2	4	2	4	3	2	7	2	4	1	3	5

2(a) The traffic flow for a four-legged intersection is as shown in figure. Given that the lost time per phase is 2.4 seconds, saturation headway is 2.2 seconds, amber time is 3 seconds per phase, find the cycle length, green time. Assume critical v/c ratio as 0.9. 8



Contd. ...

(2)

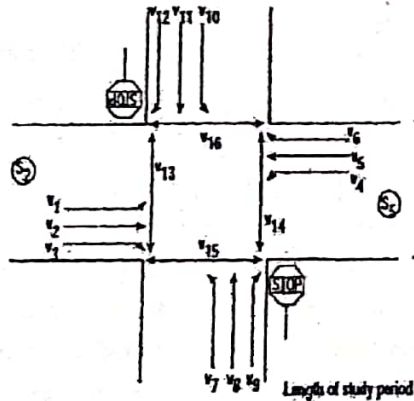
(b) What do you mean by traffic signal coordination? List out warrants for installing traffic signal. 2+6

3(a) TWSCT-intersection with an exclusive westbound left-turn lane. What is the delay and level of service for movement 9? 12

Facts: $t_{cb} = 4\text{sec}$, $t_{cT} = 0.5$, $t_{cLT} = 0$, $t_{cb} = 3\text{s}$, $t_{cHV} = 0.5$

Two lane major street: Two lane minor street: Level grade: 15% HV: Stop-controlled on minor street approach: No special intersection geometry: The speed of the pedestrians 1m/s: The analysis period is 15min. ($T=0.25$)

Direction:	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Volume:	40	200	50	300	150	60	50	89	200	15	80	90	20	54	67	81



(b) Describe the relationship between flow, speed and concentration. 4

4(a) New suburban freeway at level terrain is being proposed. It was observed that 4000 veh/hr peak hour volume with 20% truck in traffic volume count. How many lanes are needed to provide LOS C during peak hour? (Lane width = 3.6m Lateral Clearance = 1.8m, Peak hour factor = 0.85 and 1 interchange per km) 10

(b) Describe the factors affecting emission rate from the vehicles. 6

Contd. ...

(3)

5(a) Mention the causes of accidents in brief. What are the measures that can be taken for prevention of accidents?

(b) Briefly explain about the traffic management in Nepal? Elaborate the methods of conducting speed studies shortly.

6. Write short notes on any FOUR:

(a) AADT, ADT and 30th hourly volume

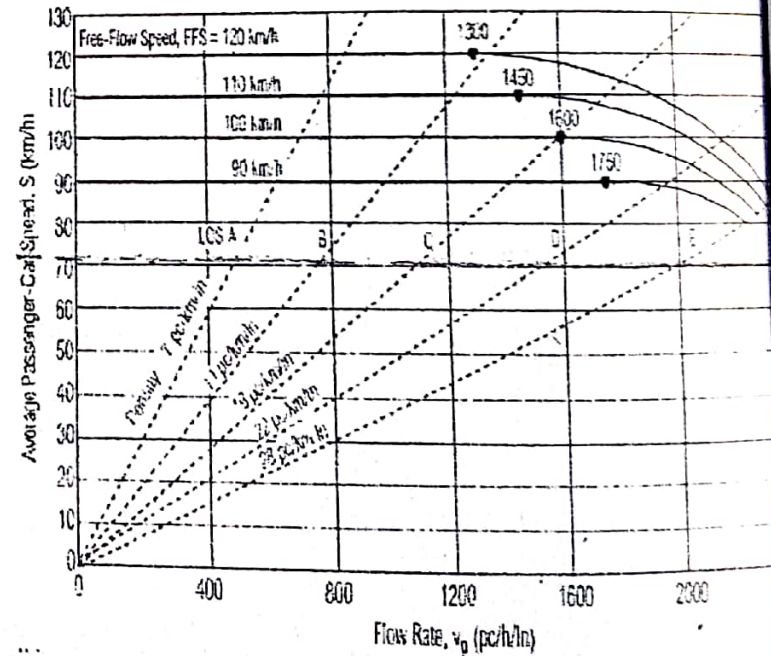
(b) Transpiration networks and its characteristic

(c) Seasonal variation

(d) Collision and condition diagram

(e) Headway and gap

EXHIBIT 23-3. SPEED-FLOW CURVES AND LOS FOR BASIC FREEWAY SEGMENTS



PURBANCHAL UNIVERSITY

2015

B.E. (Civil)/Eighth Semester/Final

Time: 03:00 hrs.

Full Marks: 80 /Pass Marks: 32

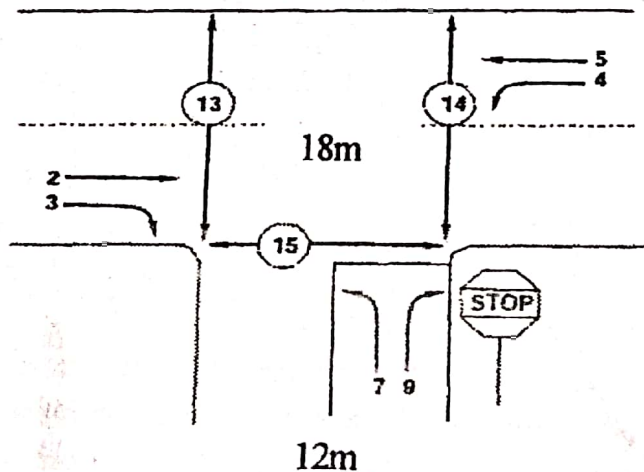
BEG469TE: Traffic Engineering Management (Elective-II) (New Course)

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

The figures in the margin indicate full marks.. The marks allotted for each sub-question is specified along its side. Assume necessary data suitably.

Answer ALL questions.

1. The Freeway Existing four-lane freeway, rural area, very restricted geometry, rolling terrain, 100-km/h speed limit. What is the LOS during the peak hour? Roadway and traffic conditions: 3.5m lane width, 1.65 m lateral clearance, Commuter traffic, 2,000-veh/h peak-hour volume (one direction), Two lanes in each direction 5 percent trucks, 7 percent RVS, 0.92 PHF, 0.6 interchanges per kilometer, Rolling terrain. 12
2. For the given three legged intersection, the total volume pedestrian and vehicular at each movement is given in the below table. Taking the following: 12



Direction:	2	3	4	5	7	9	13	14	15
Volume:	150	50	50	100	25	10	30	50	40

- $t_{cb} = 7.5$ sec, $t_{cG} = 0.2$, $t_{cT} = 1$, $t_{cLT} = 0.7$, $t_{fb} = 3.5$ s, $t_{RHV} = 1$
- The speed of the pedestrians 1.2m/s

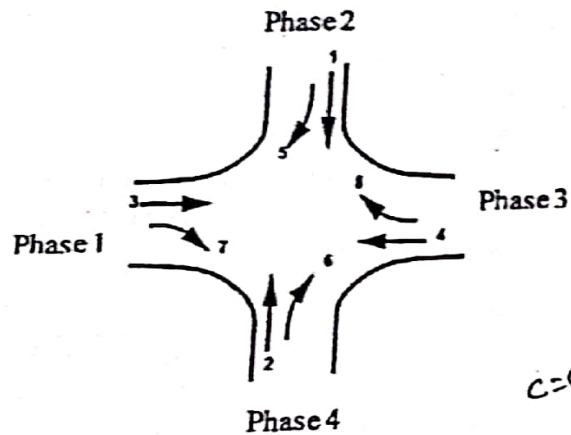
Contd. ...

(2)

- All flows contains 10% as
- The percentage of the grade is 2%
- Ignore movements coming from south bound
- The analysis period is 15min. ($T=0.25$)

Determine: The control delay and level of service for movement 7.

3. The phase planning considered and traffic flow per hour for a four- legged intersection is as shown. Given that the lost time per phase is 2.2 seconds, saturation headway is 3 seconds, amber time is 2 seconds per phase, find the cycle length, green time and phase diagram. Assume critical v/c ratio as 0.9. 12



Direction:	1	2	3	4	5	6	7	8
Volume:	367	417	400	433	196	233	215	187

4. Derive the relation for maximum flow in term of maximum velocity and density. Determine the maximum flow for the free flow speed of 90 kmph. The aerial photograph shows that average center to center spacing of two vehicles during jam (i.e. velocity is zero) is found to be 5.6m. 12

- 5(a) Mention the statistics need to be studied during off-road parking area design. 8

- (b) Define traffic signal progression with their types. 4

(3)

- 6(a) Describe the condition and collision diagram that are used by Traffic Police of Nepal for the road accident report with necessary figures. 6

- (b) Describe how you improve the traffic management of major city area like Kathmandu valley. 6

7. Write short notes on any TWO: 4+4

(a) 30th highest hourly volume

b) Factors affecting vehicles emission rates

(c) Multilane highways and basic freeway segment

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EXHIBIT 23-3. SPEED-FLOW CURVES AND LOS FOR BASIC FREEWAY SEGMENTS

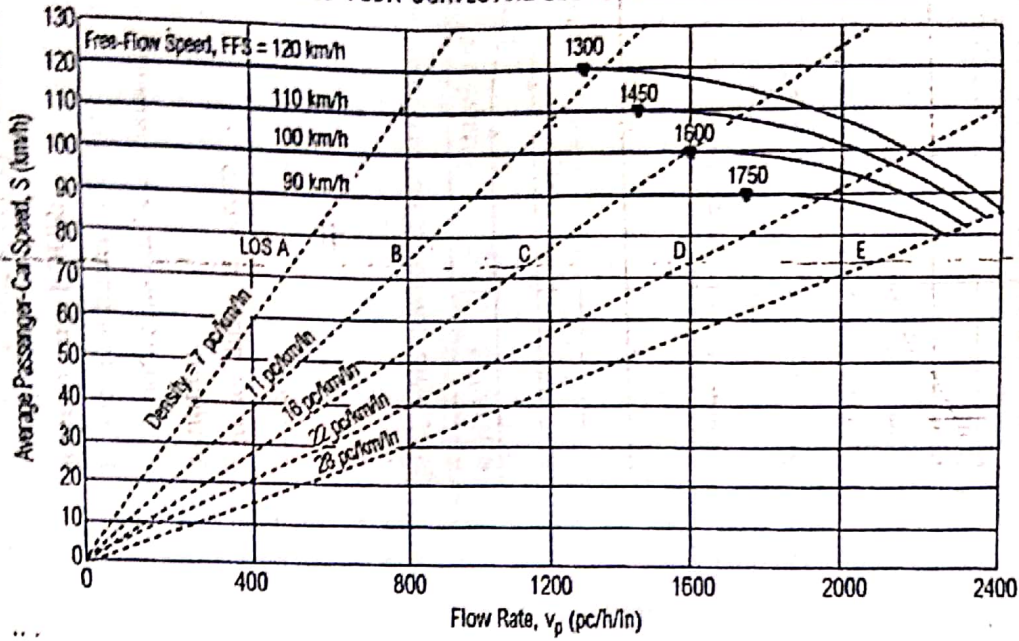


Table 1

Lane Width (m)	Reduction In Free-Flow Speed, f_{LW} (km/h)	Right-Shoulder Lateral Clearance (m)	Reduction In Free-Flow Speed, f_{LC} (km/h)				
			Lanes in One Direction				
3.6	0.0	≥ 1.8	2	3	4	≥ 5	
3.5	1.0	1.5	0.0	0.0	0.0	0.0	
3.4	2.1	1.2	1.0	0.7	0.3	0.2	
3.3	3.1	0.9	1.9	1.3	0.7	0.4	
			2.9	1.9	1.0	0.0	

Interchanges per Kilometer	Reduction In Free-Flow Speed, f_{ID} (km/h)
≤ 0.3	0.0
0.4	1.1
0.6	2.1
0.8	3.9

Number of Lanes (One Direction)	Reduction In Free-Flow Speed, f_N (km/h)		
	2	3	4
≥ 5	0.0	0.0	0.0
4	2.4	2.4	2.4
3	4.8	4.8	4.8
2	7.3	7.3	7.3

Factor	Type of Terrain		
	Level	Rolling	Mountainous
E_T (trucks and buses)	1.5	2.5	4.5
E_R (RVs)	1.2	2.0	4.0

Table 2 Level of service criteria for TWSC

Level of Service	Control delays(s/veh)
A	0-10
B	> 10-15
C	> 15-25
D	> 25-35
E	> 35-50
F	> 50