

Engineering Professional Practice

Final Exam Questions:

Case studies

- 1) A factory 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 leakage that had already taken place that might cause adverse impact on health and hygiene of the surroundings. You informed your boss about the event. Considering the possible social objection he requests you to be silent on the issue and also hints you that you may have to be out of the job if the case would go into the hands of social reformers. If you were Er. A, what you would do? Discuss.
- 2) You are appointed as a consulting engineer in a project where your best friend is supplying material. The community people knew the fact and asked you to quit the job because you cannot control the quality of the material. How do you cope with this situation? Discuss ethical aspects related to this situation.
- 3) A trial bridge (suspension bridge) over the Bheri river at Shubhaghat near Mehalkuna bazaar of Surkhet district collapsed on 25th December, 2007. The collapse of the bridge claimed some 18 people's life and it is speculated that about 70 persons are missing in the Bheri River. The mishap happened while a large crowd of people (some eye witnesses claims 500 to 600 persons) were crossing the bridge to participate in a local fair on the other side of the bank. The bridge is located at about 10 Km NorthEast from the Chhinchu bazaar. The span of the bridge was 187 meters and was completed construction in the fiscal year 2063/64 (July 2006/June 2007). This was constructed by DDC-Surkhet, supervised by DTO- Surkhet and the consultant was FACE Consultant, Kathmandu. The contractor was the DC Nirwan sewa, Nepalgunj. The fabricator of all the elements of the bridge was Hulas Steel Industries, samara. Nepal government has announced to conduct detail investigation of the incident. Initially, , it was assumed that the bridge failed due to overload. Prior to the incident, the DTO technician had allegedly instructed the contractor to tighten up the nuts of the bulldog grips of the main cables. The Chairperson of the Fair Management Committee has been quoted to say that the contractor has not tightened the nuts as was required. Preliminary investigations by the SBD engineers seem to indicate that the bridge failed due to faulty bulldog grips. How would you judge the incident on the ground of professional ethics?
- 4) Er. Satyaman Shrestha was working as a project engineer in a road project in Chitwan. Er. Ramesh Thapa, close friend of Satyaman was also working as site engineer in the same project for a construction company. Construction was in full swing. Ramesh and Satyaman were tired every day after the work. Almost every day, Ramesh proposes Stayaman for drinks and good foods in the restaurant after work. After few days of work Satyaman noticed that the ratio of cement mortar used in the stone masonry was 1:6 instead of 1:4 as per design. Similarly, there was 1:3:6 ratio of mixture instead of 1:2:4 as per design in the PCC and RCC works. Satyaman complained of this and asked for the reason. Ramesh told to Satyaman that the strength required for the construction is still safe in the mortar of 1:6 and concrete of 1:3:6 and also this is only the means to cover the overheads of entertainments and other financial benefits, Ramesh did this. As this action doesnot affect the quality of work, Ramesh requested Satyaman to stay silent on this matter and assured Satyaman that he would be responsible for all the consequences arising if any. How would you judge the role of Stayaman and Ramesh in ethical ground?
- 5) In a construction project for which you are the consultant's supervising engineer, the contractor requests you for preparing his running bill of works done, assuring you to pay a handsome amount for your work, as his engineer recently quit the job. How should you respond? Explain your arguments. Write five most important rule of conduct for a professional engineer considering code of ethics prevalent in Nepal..
- 6) Both Mr. Shyam Lal and Ram Lal, consultant engineers, applied on the floor of the building during their inspection visit, which was under construction, causing serious injury. During investigation it was revealed that the floor was not constructed as peer design and specification making it slippery. The flooring work was subcontracted to Mr. Hari on Mr. Shyam Lal's recommendation. Who is to blame? Give reasons..
- 7) A RCC bridge was designed by the designer on behalf of consultant. This was constructed by the reputed "A" class contractor. After the completion of the construction, traffic was allowed on the bridge. After six

months of operation there were cracks in the bridge. A probe team was established by road department. The design procedure was okay, but it was found that the quality of steel material used was not duly tested. The contractor argued that the procedure of construction was in accordance with the instruction of engineer and specification, however, the workmanship was found not as per specification. There was also lack of proper supervision by the consultant. The design load for the bridge was 20 tons. It was also reported that there happen to pass more than 20 tons vehicles also. The consultant was good friend of contractor. Being a member of probe team, what is your judgement on the failure of this bridge?

- 8) Engineer Ramesh Shrestha was working with the contractor in the mega construction project (say construction of multi-dimensional underground business complex in Kathmandu). You were given responsibility to control quality of work in the site. The construction company had maintained confidentiality of the incentives and salary of employees and the state of quality of work as a management tools. One day, Ramesh happen to come to the office of executive engineer Sudhir, from site. Er. Sudhir was not in his office. While waiting for Er. Sudhir, Er. Ramesh went through the computer of executive engineer. He opened entire confidential file of incentives and salaries of employees in the computer. He found differences in the level of salaries and incentives to different employees. In the mean time Er. Sudhir came to his room and found Ramesh looking confidential file on the computer. Sudhir was not happy with Ramesh for this act. How do you judge the conduct of Ramesh in the ethical ground? How should Sudhir react with Ramesh for this behavior?
- 9) You are working as a engineer from a consulting firm in Pokhara. Your friend Mr. Ram is working as a project engineer from contractor in the same project. Mr. Ram invites you for dinner every Friday to celebrate 'good Friday' and requests you to share the guesthouse for your accommodation. What would you do? Prepare a case study based on code of ethics. Make supplementary assumptions if necessary.
- 10) Er. Narendra Shah was working with the contractor in a construction project (say construction of housing complex in Kathmandu). He was given the responsibilities to control the quality of work in the site. Incidentally, material supplier (Ramchandra) in the construction is a friend of Narendra. Owing to the road blockade and other strikes, Ramchandra was facing difficulty in supplying sand and aggregates as per the given specification. Sand and aggregate materials was available in the close proximity of the site, but it is slightly substandard. Ramchandra requested Narendra to allow this material to be used for construction. Ramchandra convinced Narendra that the strength of concrete shall be produced as per specification even with the use of substandard materials. Ramchandra also offered to share 50% of the cost saved during this process. How do you judge the conduct of Narendra and Ramchandra on an ethical ground ?(2066)
- 11) During quality control visit in a remote village, it has been found that a building is being constructed on the bank of river, and it will be damaged due to flood. Approximately 20% of the construction was completed. The survey was done by your friend with the consent of the local people. However, the quality of construction was as per specification. Your job is limited to control the quality of the building only. Discuss the case and recommend your views on whether to continue the construction or not. (2067)
- 12) In a telecommunication project, you are the engineer from client's side. The contractor requests you for preparing his final bill of works done, assuring you to pay a handsome amount for your effort, as his engineer recently quit the job. How should you respond? Explain your arguments.(2068)
- 13) After being an engineer, what type of business concern should you establish if your team comprising of five engineers wish to be a design/supervision consultant in Nepal and why ?(2068)
- 14) Number of severe cracks appeared in a building designed by an engineer and also approved by the Municipality within one year of its constructon. The house owner approached you for your suggestion about the course of action he should take to get remedy. Explain your suggestion in view of liability and negligence.(2068)
- 15) Assume yourself as a recently appointed engineer – in – charge of a newly established brick factory. How do you regulate working hours and overtime hours ? What facilities should you provide to the labourers considering the requirements of prevailing labour law on Nepal ? (2068)
- 16) Recently Samsung Korea was asked to pay compensation of billions of dollar to Apple Inc. by an American court. What do you know about this case? Are you satisfied with the verdict? Express your opinion clearly.(2069)