

NED UNIVERSITY OF ENGINEERING & TECHNOLOGY
THIRD YEAR (SOFTWARE ENGINEERING)
FALL SEMESTER EXAMINATIONS 2020
BATCH 2018

Time: 3 Hours

Dated: 04-01-2021
Max.Marks:60

Applied Economics for Engineers - IF-301

Instruction: Attempt ALL questions.

- Q1. (a) Differentiate the following with suitable example: [CLO-1] (10)
- | | |
|---|------------------------------------|
| i. Project & Product | ii. Pricing & Costing |
| iii. Cash Flow Streams & Cash Flow Instances | iv. Program & Portfolio |
| v. Project Life Cycle & Product Life Cycle | vi. Efficiency & Effectiveness |
| vii. Termination Decisions & Retirement Decisions | viii. Taxation & Depreciation |
| ix. Earned Value Management & Performance Measurement | x. Time Value of Money & Valuation |
- Q2. (a) Using an example, illustrate and explain the process of delivering an MVP (starting from an idea). [CLO-2] (04)
- (b) Estimate the size in thousands lines of codes of an online student attendance system that allows entry of student's daily attendance. The system allows searching of a particular student's attendance for a specific period of time. The students attendance reports based on daily, weekly and consolidated will be generated. Use function point analysis method with programming language of your choice and appropriate influence factors. [CLO-3] (04)
- (c) Mention the benefits of using Re-Usable Off the Shelf Components in software engineering. [CLO-1] (02)
- Q3. (a) Briefly explain the metrics used to estimate productivity. Compare the productivity estimates across any two programming languages. Which two factors can highly affect the productivity of a software engineer? And Why? [CLO-1] (04)
- (b) CADCOM SOLUTIONS wants to produce a system that will perform computer aided design for the home construction industry. They are a new company and though they want to be the best in CAD systems, they are still, overall, a bit inexperienced. (04)
- Initial analysis of this problem leads to requirements calling for 3 major modules, with the following sizes:
- Screen drawing – 2 KLOC
Object-base management – 3.5 KLOC
Algebra/numerical methods – 1.75 KLOC
- Estimate the efforts, time of development, productivity and staff required. [CLO-3]
- (c) Why efforts are estimated in Person Month? Explain with example. [CLO-2] (02)

- Q4. (a) Suppose that your company has developed a Learning Management System (LMS), a software application for online teaching & learning. The LMS is deployed at multiple sites of different educational institutes including universities, colleges, schools, and tuition centers all across Pakistan. (04)
- For estimation purposes, identify the possible maintenance work as per
- each maintenance activity category &
 - factors influencing estimation of defect repairs. [CLO-2]
- (b) Explain the Planning Poker Estimation technique (including the relative sizing process) with a suitable example? [CLO-1] (04)
- (c) Briefly explain the Story Point & Hour estimation process with a suitable example? [CLO-1] (02)
- Q5. (a) To develop an ecommerce website for a book shop, you have been appointed as a moderator to estimate the efforts using expert judgement estimation technique. Explain how you will proceed as a moderator. [CLO-2] (04)
- (b) Using Object Point Method, estimate the efforts required to develop a mobile app like “Food Panda”. The app will be developed by a team of nominal experienced developers with low CASE maturity and a 20% re-use. [CLO-3] (04)
- (c) Why the understanding of economics is important for software engineers? [CLO-1] (02)
- Q6 (a) Create a WBS for a Telemedicine app that allows patients to communicate online with doctors for diagnosis, prescriptions and treatment. [CLO-2] (04)
- (b) Estimate the time required to develop the telemedicine app in Part (a) above using Three Point & PERT estimation techniques and Compare? [CLO-3] (04)
- (c) Suppose that as a Startup, you got a paid project of developing a telemedicine app. Which option would you choose from Make / Buy decision? And Why? [CLO-2] (02)