

The morning session (also known as the A.M. session) has 120 multiple-choice questions, each with four possible answers lettered (A) to (D). Responses must be recorded with a number 2 pencil on special answer sheets. No credit is given for answers recorded in ink.

Each problem in the morning session is worth one point. The total score possible in the morning is 120 points. Guessing is valid; no points are subtracted for incorrect answers.

| Morning FE Exam Subjects | | Afternoon FE Exam Subjects (General Exam) | |
|--|---------------------|--|---------------------|
| subject | number of questions | subject | number of questions |
| chemistry | 11 | chemistry | 5 |
| computers | 7 | computers | 3 |
| dynamics | 9 | dynamics | 5 |
| electrical circuits | 12 | electrical circuits | 6 |
| engineering economics | 5 | engineering economics | 3 |
| ethics | 5 | ethics | 3 |
| fluid mechanics | 8 | fluid mechanics | 4 |
| material science and structure of matter | 8 | material science and structure of matter | 3 |
| mathematics | 24 | mathematics | 12 |
| mechanics of materials | 8 | mechanics of materials | 4 |
| statics | 12 | statics | 6 |
| thermodynamics | 11 | thermodynamics | 6 |

There are six different versions of the afternoon session (also known as the P.M. session), five of which correspond to a specific engineering discipline: chemical, civil, electrical, industrial, and mechanical engineering.

Each version of the afternoon session consists of 60 questions. All questions are mandatory. Questions in each subject may be grouped into related problem sets containing between two and ten questions each.

The sixth version of the afternoon examination is a general examination suitable for anyone, but in particular, for engineers whose specialties are not one of the other five disciplines. Though the subjects in the general afternoon examination correspond to the morning subjects, the questions are more complex — hence their double weighting.

Questions on the afternoon examination are intended to cover concepts learned in the last two years of a four-year degree program. Unlike morning questions, these questions may deal with more than one basic concept per question.

The numbers of questions for each subject in the general afternoon session examination are given in the above table

The numbers of questions for each subject in the, discipline-specific afternoon session examination are listed on the following pages. The discipline specific afternoon examinations cover substantially different bodies of knowledge than the morning examination. Formulas and tables of data needed to solve questions in these examinations will be included in either the NCEES FE Reference Handbook or in the body of the question statement itself.

Each afternoon question consists of a problem statement followed by multiple-choice questions. Four answer choices lettered (A) through (D) are given, from which you must choose the best answer.

- Each question in the afternoon is worth two points, making the total possible score 120 points.
- The scores from the morning and afternoon sessions are added together to determine your total score. No points are subtracted for guessing or incorrect answers. Both sessions are given equal weight

CHEMICAL ENGINEERING

| <u>subject</u> | <u>number of questions</u> |
|---|----------------------------|
| chemical reaction engineering | 6 |
| chemical thermodynamics | 6 |
| computer and numerical methods | 3 |
| heat transfer | 6 |
| mass transfer | 6 |
| material/energy balances | 9 |
| pollution prevention (waste minimization) | 3 |
| process control | 3 |
| process design and economics evaluation | 6 |
| process equipment design | 3 |
| process safety | 3 |
| transport phenomenon | 6 |

INDUSTRIAL ENGINEERING

| <u>subject</u> | <u>number of questions</u> |
|---|----------------------------|
| computer computations and modeling | 3 |
| design of industrial experiments | 3 |
| engineering economics | 3 |
| engineering statistics | 3 |
| facility design and location | 3 |
| industrial cost analysis | 3 |
| industrial ergonomics | 3 |
| industrial management | 3 |
| information system design | 3 |
| manufacturing processes | 3 |
| manufacturing systems design | 3 |
| material handling system design | 3 |
| mathematical optimization and modeling | 3 |
| production planning and scheduling | 3 |
| productivity measurement and management | 3 |
| queuing theory and modeling | 3 |
| simulation | 3 |
| statistical quality control | 3 |
| total quality management | 3 |
| work performance and methods | 3 |

ELECTRICAL ENGINEERING

| <u>subject</u> | <u>number of questions</u> |
|---|----------------------------|
| analog electronic circuits | 6 |
| communications theory | 6 |
| computer and numerical methods | 3 |
| computer hardware engineering | 3 |
| computer software engineering | 3 |
| control systems theory and analysis | 6 |
| digital systems | 6 |
| electromagnetic theory and applications | 6 |
| instrumentation | 3 |
| network analysis | 6 |
| power systems | 3 |
| signal processing | 3 |
| solid state electronics and drives | 6 |

CIVIL ENGINEERING

| <u>subject</u> | <u>number of questions</u> |
|---|----------------------------|
| computers and numerical methods | 6 |
| construction management | 3 |
| environmental engineering | 6 |
| hydraulics and hydrologic systems | 6 |
| legal and professional aspects | 3 |
| soil mechanics and foundations | 6 |
| structural analysis (frames, trusses, etc.) | 6 |
| structural design (concrete, steel, etc.) | 6 |
| surveying | 6 |
| transportation facilities | 6 |
| water purification and treatment | 6 |

MECHANICAL ENGINEERING

| <u>subject</u> | <u>number of questions</u> |
|--|----------------------------|
| automatic controls | 3 |
| computer (numerical methods, automation, etc.) | 3 |
| dynamic systems (vibrations, kinematics, etc.) | 6 |
| energy conversion and power plants | 3 |
| fans, pumps, and compressors | 3 |
| fluid mechanics | 6 |
| heat transfer | 6 |
| material behavior/processing | 3 |
| measurement and instrumentation | 6 |
| mechanical design | 6 |
| refrigeration and HVAC | 3 |
| stress analysis | 6 |
| thermodynamics | 6 |

Morning:

| | |
|---------------------|----|
| computers | 7 |
| electrical circuits | 12 |

total of 19/120, about 10%

General Afternoon:

| | |
|---------------------|---|
| computers | 3 |
| electrical circuits | 6 |

total of 9/60, again about 10%

I did a count of the various sample exams and came up with the following topical distribution.

Morning general examination:

| | |
|-----------------------------|---|
| Laplace transform | 1 |
| power triangle | 1 |
| impedance diagram (phasors) | 1 |
| transients | 2 |
| electromagnetic fields | 1 |
| DC circuits | 1 |
| computers | 2 |

Afternoon general examination:

| | |
|------------|---|
| transients | 3 |
| computers | 1 |

Afternoon, EE specific examination:

| | |
|---------------------------|---|
| op-amps | 4 |
| transistors (BJT & FET) | 4 |
| control | 3 |
| communications | 2 |
| E&M | 2 |
| Digital filters | 3 |
| Solid State | 3 |
| Phasors | 2 |
| Three-phase power | 2 |
| digital (mostly counters) | 3 |
| differential equations | 1 |
| computer | 1 |