Assignment

**Section A:** Circle the right choice.

1.  A firm should never accept a project if its acceptance would lead to an increase in the firm's cost of capital (its WACC).
A.  True
B.  False

2.  Because "present value" refers to the value of cash flows that occur at different points in time, a series of present values of cash flows should not be summed to determine the value of a capital budgeting project.
A.  True
B.  False

3.  Assuming that their NPVs based on the firm's cost of capital are equal, the NPV of a project whose cash flows accrue relatively rapidly will be more sensitive to changes in the discount rate than the NPV of a project whose cash flows come in later in its life.
A.  True
B.  False

4.  A basic rule in capital budgeting is that If a project's NPV exceeds its IRR, then the project should be accepted.
A.  True
B.  False

5.  Conflicts between two mutually exclusive projects occasionally occur, where the NPV method ranks one project higher but the IRR method ranks the other one first. In theory, such conflicts should be resolved in favor of the project with the higher positive NPV.
A.  True
B.  False

6.  Conflicts between two mutually exclusive projects occasionally occur, where the NPV method ranks one project higher but the IRR method ranks the other one first. In theory, such conflicts should be resolved in favor of the project with the higher positive IRR.
A.  True
B.  False

7.  The internal rate of return is that discount rate that equates the present value of the cash outflows (or costs) with the present value of the cash inflows.
A.  True
B.  False

8.  Other things held constant, an increase in the cost of capital will result in a decrease in a project's IRR.
A.  True
B.  False

9.  A project’s IRR is independent of the firm’s cost of capital. In other words, a project’s IRR doesn’t change with a change in the firm’s cost of capital.
A.  True
B.  False

10.  Under certain conditions, a project may have more than one IRR. One such condition is when, in addition to the initial investment at time = 0, a negative cash flow (or cost) occurs at the end of the project's life.
A.  True
B.  False

11.  The phenomenon called "multiple internal rates of return" arises when two or more mutually exclusive projects that have different lives are compared to one another.
A.  True
B.  False

12.  The NPV method is based on the assumption that projects' cash flows are reinvested at the project's risk-adjusted cost of capital.
A.  True
B.  False

13.  The IRR method is based on the assumption that projects' cash flows are reinvested at the project's risk-adjusted cost of capital.
A.  True
B.  False

14.  The NPV method's assumption that cash inflows are reinvested at the cost of capital is generally more reasonable than the IRR's assumption that cash flows are reinvested at the IRR. This is an important reason why the NPV method is generally preferred over the IRR method.
A.  True
B.  False

15.  For a project with one initial cash outflow followed by a series of positive cash inflows, the modified IRR (MIRR) method involves compounding the cash inflows out to the end of the project's life, summing those compounded cash flows to form a terminal value (TV), and then finding the discount rate that causes the PV of the TV to equal the project's cost.
A.  True
B.  False

16.  Both the regular and the modified IRR (MIRR) methods have wide appeal to professors, but most business executives prefer the NPV method to either of the IRR methods.
A.  True.
B.  False.

17.  When evaluating mutually exclusive projects, the modified IRR (MIRR) always leads to the same capital budgeting decisions as the NPV method, regardless of the relative lives or sizes of the projects being evaluated.
A.  True
B.  False

18.  One advantage of the payback method for evaluating potential investments is that it provides information about a project's liquidity and risk.
A.  True
B.  False

19.  When considering two mutually exclusive projects, the firm should always select the project whose internal rate of return is the highest, provided the projects have the same initial cost. This statement is true regardless of whether the projects can be repeated or not.
A.  True
B.  False

20.  The primary reason that the NPV method is conceptually superior to the IRR method for evaluating mutually exclusive investments is that multiple IRRs may exist, and when that happens, we don't know which IRR is relevant.
A.  True
B.  False

21.  Which of the following statements is CORRECT? Assume that the project being considered has normal cash flows, with one outflow followed by a series of inflows.
A.  A project’s NPV is found by compounding the cash inflows at the IRR to find the terminal value (TV), then discounting the TV at the WACC.
B.  The lower the WACC used to calculate a project’s NPV, the lower the calculated NPV will be.
C.  If a project’s NPV is less than zero, then its IRR must be less than the WACC.
D.  If a project’s NPV is greater than zero, then its IRR must be less than zero.
E.  The NPV of a relatively low-risk project should be found using a relatively high WACC.

22.  Which of the following statements is CORRECT? Assume that the project being considered has normal cash flows, with one outflow followed by a series of inflows.
A.  A project’s regular IRR is found by compounding the cash inflows at the WACC to find the terminal value (TV), then discounting this TV at the WACC.
B.  A project’s regular IRR is found by discounting the cash inflows at the WACC to find the present value (PV), then compounding this PV to find the IRR.
C.  If a project’s IRR is greater than the WACC, then its NPV must be negative.
D.  To find a project’s IRR, we must solve for the discount rate that causes the PV of the inflows to equal the PV of the project’s costs.
E.  To find a project’s IRR, we must find a discount rate that is equal to the WACC.

23.  Which of the following statements is CORRECT? Assume that the project being considered has normal cash flows, with one outflow followed by a series of inflows.
A.  A project’s regular IRR is found by compounding the initial cost at the WACC to find the terminal value (TV), then discounting the TV at the WACC.
B.  A project’s regular IRR is found by compounding the cash inflows at the WACC to find the present value (PV), then discounting the TV to find the IRR.
C.  If a project’s IRR is smaller than the WACC, then its NPV will be positive.
D.  A project’s IRR is the discount rate that causes the PV of the inflows to equal the project’s cost.
E.  If a project’s IRR is positive, then its NPV must also be positive.

24.  Which of the following statements is CORRECT?
A.  If a project has “normal” cash flows, then its IRR must be positive.
B.  If a project has “normal” cash flows, then its MIRR must be positive.
C.  If a project has “normal” cash flows, then it will have exactly two real IRRs.
D.  d. The definition of “normal” cash flows is that the cash flow stream has one or more negative cash flows followed by a stream of positive cash flows and then one negative cash flow at the end of the project’s life.
E.  If a project has “normal” cash flows, then it can have only one real IRR, whereas a project with “nonnormal” cash flows might have more than one real IRR.

25.  Which of the following statements is CORRECT?
A.  Projects with “normal” cash flows can have only one real IRR.
B.  Projects with “normal” cash flows can have two or more real IRRs.
C.  Projects with “normal” cash flows must have two changes in the sign of the cash flows, e.g., from negative to positive to negative. If there are more than two sign changes, then the cash flow stream is “nonnormal.”
D.  The “multiple IRR problem” can arise if a project’s cash flows are “normal.”
E.  Projects with “nonnormal” cash flows are almost never encountered in the real world.

26.  Which of the following statements is CORRECT?
A.  Projects with “normal” cash flows can have only one real IRR.
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C.  Projects with “normal” cash flows must have two changes in the sign of the cash flows, e.g., from negative to positive to negative. If there are more than two sign changes, then the cash flow stream is “nonnormal.”
D.  The “multiple IRR problem” can arise if a project’s cash flows are “normal.”
E.  Projects with “nonnormal” cash flows are almost never encountered in the real world.

27.  Which of the following statements is CORRECT? Assume that the project being considered has normal cash flows, with one outflow followed by a series of inflows.

A.  The longer a project’s payback period, the more desirable the project is normally considered to be by this criterion.
B.  One drawback of the regular payback for evaluating projects is that this method does not properly account for the time value of money.
C.  If a project’s payback is positive, then the project should be rejected because it must have a negative NPV.
D.  The regular payback ignores cash flows beyond the payback period, but the discounted payback method overcomes this problem.
E.  If a company uses the same payback requirement to evaluate all projects, say it requires a payback of 4 years or less, then the company will tend to reject projects with relatively short lives and accept long-lived projects, and this will cause its risk to increase over time.

28.  Assume a project has normal cash flows. All else equal, which of the following statements is CORRECT? c. A project’s MIRR is unaffected by changes in the WACC.
A.  A project’s IRR increases as the WACC declines.
B.  A project’s NPV increases as the WACC declines.
C.  A project’s regular payback increases as the WACC declines.
D.  A project’s discounted payback increases as the WACC declines.

29.  Which of the following statements is CORRECT? c. The discounted payback method is generally regarded by academics as being the best single method for evaluating capital budgeting projects.
A.  The internal rate of return method (IRR) is generally regarded by academics as being the best single method for evaluating capital budgeting projects.
B.  The payback method is generally regarded by academics as being the best single method for evaluating capital budgeting projects.
C.  The net present value method (NPV) is generally regarded by academics as being the best single method for evaluating capital budgeting projects.
D.  The modified internal rate of return method (MIRR) is generally regarded by academics as being the best single method for evaluating capital budgeting projects.
E.  None of the above is correct.

30.  Which of the following statements is CORRECT?
A.  An NPV profile graph shows how a project’s payback varies as the cost of capital changes.
B.  The NPV profile graph for a normal project will generally have a positive (upward) slope as the life of the project increases.
C.  An NPV profile graph is designed to give decision makers an idea about how a project’s risk varies with its life.
D.  An NPV profile graph is designed to give decision makers an idea about how a project’s contribution to the firm’s value varies with the cost of capital.
E.  We cannot draw a project’s NPV profile unless we know the appropriate WACC for use in evaluating the project’s NPV.

###### Section B: Problems.

31. Anderson Systems is considering a project that has the following cash flow and WACC data. What is the project's NPV? Note that if a project's expected NPV is negative, it should be rejected. WACC: 9.00%

Year 0 1 2 3

Cash flows -$1,000 $500 $500 $500

a. $265.65

b. $278.93

c. $292.88

d. $307.52

e. $322.90

32. Tuttle Enterprises is considering a project that has the following cash flow and WACC data. What is the project's NPV? Note that if a project's expected NPV is negative, it should be rejected. WACC: 11.00%

Year 0 1 2 3 4

Cash flows -$1,000 $350 $350 $350 $350

a. $77.49

b. $81.56

c. $85.86

d. $90.15

e. $94.66

33. Harry's Inc. is considering a project that has the following cash flow and WACC data. What is the project's NPV? Note that if a project's expected NPV is negative, it should be rejected. WACC: 10.25%

Year 0 1 2 3 4 5

Cash flows -$1,000 $300 $300 $300 $300 $300

a. $105.89

b. $111.47

c. $117.33

d. $123.51

e. $130.01

34. Simms Corp. is considering a project that has the following cash flow data. What is the project's IRR? Note that a project's IRR can be less than the WACC or negative, in both cases it will be rejected.

Year 0 1 2 3

Cash flows -$1,000 $425 $425 $425

a. 12.55%

b. 13.21%

c. 13.87%

d. 14.56%

e. 15.29%

35. Warr Company is considering a project that has the following cash flow data. What is the project's IRR? Note that a project's IRR can be less than the WACC or negative, in both cases it will be rejected.

Year 0 1 2 3 4

Cash flows -$1,050 $400 $400 $400 $400

a. 14.05%

b. 15.61%

c. 17.34%

d. 19.27%

e. 21.20%

36. Resnick Inc. is considering a project that has the following cash flow data. What is the project's payback?

Year 0 1 2 3

Cash flows -$350 $200 $200 $200

a. 1.42 years

b. 1.58 years

c. 1.75 years

d. 1.93 years

e. 2.12 years

 37. Fernando Designs is considering a project that has the following cash flow and WACC data. What is the project's discounted payback?

WACC: 10.00%

Year 0 1 2 3

Cash flows -$900 $500 $500 $500

a. 1.88 years

b. 2.09 years

c. 2.29 years

d. 2.52 years

e. 2.78 years

38. Ehrmann Data Systems is considering a project that has the following cash flow and WACC data. What is the project's MIRR? Note that a project's MIRR can be less than the WACC (and even negative), in which case it will be rejected.

WACC: 10.00%

Year 0 1 2 3

Cash flows -$1,000 $450 $450 $450

a. 9.32%

b. 10.35%

c. 11.50%

d. 12.78%

e. 14.20%

39. Ingram Electric Products is considering a project that has the following cash flow and WACC data. What is the project's MIRR? Note that a project's MIRR can be less than the WACC (and even negative), in which case it will be rejected.

WACC: 11.00%

Year 0 1 2 3

Cash flows -$800 $350 $350 $350

a. 8.86%

b. 9.84%

c. 10.94%

d. 12.15%

e. 13.50%

 40. Projects A and B are mutually exclusive and have normal cash flows. Project A has an IRR of 15% and B's IRR is 20%. The company’s WACC is 12%, and at that rate Project A has the higher NPV. Which of the following statements is CORRECT?

a. The crossover rate for the two projects must be less than 12%.

b. Assuming the timing pattern of the two projects’ cash flows is the same, Project B probably has a higher cost (and larger scale).

c. Assuming the two projects have the same scale, Project B probably has a faster payback than Project A.

d. The crossover rate for the two projects must be 12%.

e. Since B has the higher IRR, then it must also have the higher NPV if the crossover rate is less than the WACC of 12%.