

# PRACTICE EXAM 20: OHIO BUSINESS AND LAW SIMULATION (50 QUESTIONS)

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## 50 Questions — 120 Minutes Recommended

1. Two Ohio contractors decide to collaborate on a single large commercial hospital project that neither could handle alone. They agree to share profits equally, contribute equal resources, and jointly manage the project. They do not form a separate legal entity. What type of business arrangement have they created?

- A. A general partnership that will continue indefinitely for all future projects
- B. A joint venture that is limited in scope and duration to the specific hospital project
- C. A limited liability company formed by operation of law when two businesses collaborate
- D. A merger of the two businesses into a single permanent entity

2. An Ohio contractor operates as a sole proprietorship and earns \$280,000 in net business income. The contractor pays selfemployment tax at 15.3% on the full amount. The contractor's tax advisor recommends converting to an S corporation with a reasonable salary of \$130,000 and \$150,000 in distributions. Additionally, the advisor recommends contributing \$22,000 to a SEPIRA. What is the approximate FICA savings from the S corp conversion?

- A. \$42,840 representing the elimination of all selfemployment tax
- B. \$19,890 representing the FICA savings on the \$130,000 salary portion
- C. \$22,000 representing the SEPIRA contribution which offsets the FICA obligation
- D. \$22,950 representing the 15.3% FICA rate avoided on the \$150,000 in distributions

3. A contractor's business plan includes a five-year financial projection. Year 1 revenue is \$900,000. Year 5 revenue is projected at \$3,200,000 — a 256% increase over five years. The plan assumes the same two-person management team throughout the five years with no additional management hires. A bank reviewer identifies this as a critical weakness. Why?

- A. Revenue growth of 256% is impossible for any construction company regardless of market conditions
- B. The financial projections should extend to ten years because banks require decade-long forecasts
- C. The management capacity of two people is unlikely to support a 256% revenue increase because scaling from \$900,000 to \$3,200,000 requires additional management infrastructure that the plan does not address
- D. The plan should project declining revenue because the construction industry contracts over five-year cycles

4. An Ohio contractor holds an OCILB plumbing license that was issued three years ago. The contractor has not performed any continuing education since the license was issued. The license renewal deadline is approaching. Under OCILB requirements, what must the contractor do to renew?

- A. Complete the required continuing education hours through an OCILB-approved provider and submit proof with the renewal application
- B. Retake the Business and Law exam because the original exam result expires after three years
- C. Submit a letter from three clients verifying satisfactory work performance during the license period
- D. Pay only the renewal fee because continuing education is not required for OCILB license renewal

5. Under ORC Chapter 4740, an Ohio building department discovers that a contractor performing commercial HVAC work on a school project holds an OCILB license in electrical — not HVAC. The electrical license does not authorize HVAC work. The contractor argues that HVAC systems include electrical components and the electrical license covers all aspects of the installation. Is the contractor's argument valid?

- A. Yes because the electrical license covers all electrical components within any mechanical system
- B. No because HVAC work requires a separate OCILB HVAC license and the electrical license does not authorize work outside the electrical trade classification regardless of electrical components within the HVAC system

- C. Yes because OCILB licenses are interchangeable among the five licensed trades
- D. No but the contractor can continue working under a temporary HVAC permit issued by the building department

6. A contractor calculates the following costs for a commercial plumbing bid: direct labor \$168,000, direct materials \$94,000, equipment rental \$18,000, subcontracted work \$55,000. Job overhead is eight percent of direct costs. General overhead is twelve percent of direct costs. The contractor wants a net profit margin of ten percent on the selling price. What is the bid price?

- A. \$335,000 representing direct costs only with overhead and profit excluded
- B. \$401,800 representing direct costs plus job overhead plus general overhead with no profit
- C. \$446,444 representing total costs plus a ten percent markup on total costs
- D. \$446,444 calculated by dividing total costs (\$401,800) by 0.90 to achieve a ten percent margin on the selling price

7. A contractor on a public project submits a bid bond equal to ten percent of the bid price as required. After bid opening, the contractor discovers a \$95,000 mathematical error in the bid. The bid bond amount is \$82,000. The next lowest bid is \$60,000 higher. The contractor wants to withdraw the bid. If the owner holds the contractor to the bid and the contractor refuses to execute the contract, what is the maximum the surety will pay?

- A. \$60,000 representing the difference between the withdrawing bid and the next lowest bid because the surety's obligation is limited to the owner's actual damages up to the penal amount of the bond
- B. \$82,000 representing the full penal amount of the bid bond regardless of the owner's actual damages
- C. \$95,000 representing the full amount of the contractor's estimating error
- D. Zero because mathematical errors constitute grounds for automatic bid withdrawal without bond forfeiture

8. A contractor enters into a lump sum contract for \$1,100,000 on a commercial office building. The contract includes a nodamagefordelay clause. During construction, the owner fails to provide access to the mechanical penthouse for six weeks due to ongoing tenant negotiations in the occupied portion of the building. The contractor incurs \$72,000 in delay costs — extended supervision, idle equipment,

and crew standby. The contractor submits a delay claim. What is the contractor likely entitled to receive?

- A. The full \$72,000 because ownercaused access delays are always excluded from nodamagefordelay clauses
- B. \$36,000 representing fifty percent of the delay costs as a standard compromise under nodamage clauses
- C. A sixweek time extension but no monetary compensation for the \$72,000 in delay costs under standard enforcement of the nodamagefordelay clause
- D. The full \$72,000 plus consequential damages for lost profits on other projects delayed by the access restriction

9. A general contractor on a commercial project discovers that the architectural drawings show a column at a location where the structural drawings show a clear span. The structural engineer's calculations do not reference a column at that location. The contractor submits an RFI to resolve the conflict. While waiting for the response, the contractor pours the foundation without a column footing at the disputed location. The architect's response confirms a column is required. What cost does the contractor bear?

- A. Zero because the contractor properly submitted an RFI and the conflicting documents relieve the contractor of responsibility
- B. The full cost of adding the column footing because the contractor proceeded at risk before receiving the RFI response and a reasonable contractor would have installed the footing as a precaution
- C. The architect bears the cost because the architect created the conflicting documents
- D. Half the cost shared with the architect because both parties contributed to the problem

10. A contractor on a commercial project maintains a comprehensive change order log. Over eighteen months, the log records thirtyone approved change orders. The project manager categorizes each change by origin: twelve are ownerdirected modifications, eight are design revisions by the architect, six are unforeseen site conditions, and five are coderequired changes. The owner questions the volume of changes. What does the categorization reveal?

- A. The contractor is generating unnecessary changes to increase revenue through change orders
- B. The architect is solely responsible because design revisions represent the largest single category

C. The categorization reveals that the majority of changes originated from the owner and architect — not from the contractor — and the unforeseen conditions and code changes were beyond anyone's control

D. The volume of changes indicates the project was inadequately planned by all parties equally

11. A contractor's CPM schedule shows a commercial project with a duration of 160 days. At the Day 80 midpoint update, the schedule analysis reveals that the critical path has shifted. The original critical path through activities ACFHK had a total duration of 160 days. A parallel path through activities BDGJL originally had twelve days of float but has experienced a sixteenday delay on Activity G. What is the revised project duration?

A. 160 days because the original critical path duration is unchanged

B. 172 days because the sixteenday delay on Activity G is added to the original project duration

C. 176 days because the twelve days of float on the parallel path are consumed plus a fourday extension

D. 164 days because the sixteenday delay consumed the twelve days of float and exceeded it by four days extending the project by four days

12. A contractor on a commercial project reaches substantial completion. The architect issues the Certificate of Substantial Completion listing twentytwo punch list items. The contract provides thirty days to complete the punch list. The contractor completes all twentytwo items within twentyfive days and requests a reinspection. During the reinspection, the architect identifies that three items were not corrected to the architect's satisfaction and discovers one new item — a fire caulking deficiency in a mechanical penetration. The contractor argues the new item should have been on the original list. What is the contractor's obligation?

A. Correct only the three improperly resolved items and refuse the new item because it was not on the original punch list

B. Correct the three items and negotiate a change order for the fire caulking as additional scope

C. The architect cannot add items after the original punch list is issued

D. Correct all four items because the contractor's obligation to deliver conforming work continues through final completion regardless of the original punch list content

13. A contractor's CGL policy provides \$2,000,000 peroccurrence, \$4,000,000 general aggregate, and \$4,000,000 productscompleted operations aggregate. The contractor also has a \$5,000,000 umbrella policy. During the policy year, a completed operations claim arises for \$3,500,000 from a single occurrence. How is the claim paid?

- A. CGL pays \$2,000,000 (peroccurrence limit) and the owner absorbs the remaining \$1,500,000
- B. CGL pays \$3,500,000 from the productscompleted operations aggregate because the claim is within the aggregate
- C. CGL pays \$2,000,000 (peroccurrence limit) and the umbrella pays \$1,500,000 for the excess
- D. The umbrella pays the full \$3,500,000 because completed operations claims are excluded from CGL coverage

14. An Ohio contractor has a workers' compensation base premium of \$72,000 and an EMR of 1.15. A workplace accident results in a \$250,000 claim. The contractor wants to understand the longterm premium impact. Over the next three years, the EMR is projected to increase to 1.45 due to the claim. What is the annual premium at the projected 1.45 EMR?

- A. \$82,800 calculated at the original 1.15 EMR
- B. \$104,400 calculated as  $\$72,000 \times 1.45$  representing the annual premium at the projected EMR
- C. \$72,000 because the base premium is unaffected by claims
- D. \$250,000 because the annual premium equals the claim amount for the year of the injury

15. A commercial project owner requires the general contractor to provide a performance bond. The contractor's surety evaluates the contractor using the "three Cs" — Character, Capacity, and Capital. The contractor has excellent financial statements and a strong track record of completing projects on time and within budget. However, the surety discovers that the contractor has been involved in two lawsuits in the past year — one for alleged bid rigging and another for alleged kickbacks to a project manager. Which of the three Cs is the primary concern?

- A. Capital because lawsuits may result in financial penalties that deplete the contractor's net worth
- B. Capacity because the lawsuits may distract management from project oversight
- C. Neither because lawsuits are common in the construction industry and do not affect surety evaluations

D. Character because allegations of bid rigging and kickbacks directly question the contractor's integrity and ethical standards which are fundamental to the surety relationship

16. Under OSHA's construction standards, a contractor provides a personal fall arrest system to a worker on a commercial project. The system includes a fullbody harness, a shockabsorbing lanyard with a maximum extended length of six feet, and an anchorage point on a steel beam directly above the worker at a height of eight feet above the platform. The platform is fourteen feet above the lower level. Is the fall clearance adequate?

- A. Yes because the total fall distance — sixfoot lanyard plus threeandahalffoot deceleration distance plus approximately five feet from the Dring to the worker's feet — totals approximately fourteen and a half feet but the eightfoothigh anchorage above the platform provides adequate clearance
- B. No because the total fall distance exceeds the fourteenfoot clearance to the lower level
- C. Yes because any anchorage above the worker's head automatically provides adequate clearance
- D. No because the anchorage must be at least fifteen feet above the lower level

17. An OSHA compliance officer inspects a commercial construction site and observes the following conditions in a single trench: the trench is eight feet deep in Type C soil, the protective system is a trench box that extends to only five feet deep leaving three feet of unprotected wall above the box, no ladder is present for worker egress, and the competent person is offsite attending a meeting. How many potential OSHA violations exist?

- A. One combined violation for general trench safety noncompliance
- B. Two violations — one for the inadequate protective system and one for the absent competent person
- C. At least three violations — inadequate protective system coverage, no means of egress for a trench exceeding four feet, and absence of the competent person during active trench operations
- D. Four violations — one for each observed deficiency including improper soil classification

18. A contractor's employee sustains a laceration on the forearm from a sharp sheet metal edge. The company physician cleans the wound, applies antibiotic ointment, and covers it with a sterile adhesive bandage. The employee returns to regular duty immediately with no restrictions. Three days later, the wound shows signs of infection and the physician prescribes a course of oral antibiotics. Under OSHA recordkeeping, when does the injury become recordable?

- A. At the time of the initial treatment because any physician visit triggers recordability
- B. The injury is never recordable because the initial treatment was first aid and subsequent treatment decisions do not change the classification
- C. Only when the employee misses a full workday due to the infection
- D. When the physician prescribes oral antibiotics because prescription medication constitutes medical treatment beyond first aid regardless of whether the initial treatment was classified as first aid

19. An Ohio employer with sixty employees receives an FMLA leave request from a worker to care for a domestic partner with a serious health condition. The employee has been with the company for five years and worked 2,000 hours in the past twelve months. The employer denies the request. Is the denial proper?

- A. Yes because the FMLA covers leave to care for a spouse, child, or parent with a serious health condition but does not include domestic partners as qualifying family members unless the domestic partner qualifies under another category
- B. No because FMLA covers all members of the employee's household including domestic partners
- C. No because the employee exceeds all eligibility requirements and caregiving is broadly defined under the FMLA
- D. Yes because the FMLA applies only to the employee's own serious health condition not to caregiving for others

20. A contractor on a commercial project maintains asbuilt drawings throughout construction. The asbuilt drawings document that the main electrical feeder was rerouted twelve feet north of the designed location to avoid a previously unknown storm sewer discovered during excavation. The asbuilt also documents a sixinch water main relocated eight feet east for the same reason. Both relocations were approved by the engineer through RFIs. Why is this level of asbuilt documentation critical?

- A. It provides the contractor with evidence to support change order claims for the relocation costs
- B. It ensures that anyone performing future excavation, maintenance, or construction will know the actual locations of the electrical feeder and water main which differ significantly from the original design drawings
- C. It satisfies the building inspector's requirement for final electrical and plumbing inspection approval
- D. It transfers liability for the relocated utilities from the contractor to the project architect

21. A contractor's surety reviews the contractor's financial statements and notes a troubling combination: accounts receivable have increased by forty percent, accounts payable have increased by fiftyfive percent, and cash on hand has decreased by thirty percent — all while revenue has grown only ten percent. What financial condition does this pattern suggest?

- A. Strong growth management because revenue is increasing and receivables reflect future income
- B. No concern because growing receivables and payables are normal characteristics of a growing business
- C. The contractor may be experiencing a cash flow squeeze — collecting slowly from customers while owing more to suppliers and depleting cash reserves which could lead to an inability to meet obligations
- D. The pattern indicates the contractor is shifting from cashbasis to accrualbasis accounting

22. An Ohio contractor earns \$3,700,000 in annual gross receipts from commercial electrical work. The contractor's spouse operates a residential cleaning business earning \$120,000 in annual gross receipts. For Ohio CAT purposes, what is the contractor's CAT liability on the electrical business?

- A. 0.26% of \$2,700,000 (electrical receipts above \$1,000,000) plus the minimum tax for the first \$1,000,000 tier
- B. 0.26% of \$2,700,000 (\$7,020) plus the minimum tax (\$800) for a total of approximately \$7,820 assessed separately on the electrical business because the CAT applies at the business entity level
- C. 0.26% of the combined \$3,820,000 in total household business receipts
- D. Zero because the spouse's business reduces the household's combined income below the CAT threshold

23. An Ohio contractor purchases \$68,000 in mechanical equipment from an Ohio distributor and pays full Ohio sales tax. The equipment is installed on a federal military base project. The federal government is exempt from state sales tax. The contractor discovers the exemption after the purchase. Can the contractor recover the sales tax?

- A. No because the contractor already paid the tax and federal exemptions cannot be applied retroactively to completed transactions
- B. No because only prime contractors on federal projects can claim sales tax exemptions not subcontractors

- C. Yes but the contractor must file a claim directly with the federal government for reimbursement
- D. Yes because the contractor may seek a refund from the distributor by presenting the federal exemption or file a claim with the Ohio Department of Taxation

24. A subcontractor on a private commercial project serves a Notice of Furnishing on Day 21 — the last day of the statutory window. The subcontractor completes work on August 30 and files a mechanic's lien affidavit on October 28 — fifty-nine days after last furnishing. The subcontractor serves the filed affidavit on the property owner on November 25 — twenty-eight days after filing. Are all procedural steps timely?

- A. Yes because each step was completed within its respective deadline — Notice within twenty-one days, affidavit within sixty days, and service within thirty days
- B. No because the Notice of Furnishing on the last possible day creates a rebuttable presumption of untimeliness
- C. No because the fifty-nine day filing period exceeds a forty-five day deadline for subcontractor liens
- D. No because the twenty-eight day service period is insufficient and must be exactly thirty days

25. A general contractor on a private commercial project obtains unconditional final lien waivers from all first-tier subcontractors at final payment. Two months after final payment, a second-tier sub-subcontractor files a mechanic's lien against the property for \$44,000 in unpaid ductwork installation. The sub-subcontractor had properly served a Notice of Furnishing on the property owner. The GC argues that the unconditional waivers from the first-tier subcontractors cover all downstream parties. Is the GC correct?

- A. Yes because unconditional final waivers from first-tier subcontractors release all lien rights throughout the entire subcontracting chain
- B. Yes because sub-subcontractors cannot file mechanic's liens on private commercial projects
- C. No because the first-tier subcontractor's waiver releases only that subcontractor's lien rights not the independent lien rights of the sub-subcontractor who is a separate party with separate statutory lien rights
- D. No but the sub-subcontractor's lien is limited to fifty percent of the claimed amount when a first-tier waiver exists

26. A contractor files a mechanic's lien on a commercial property for \$135,000 on January 15. The contractor serves the owner on February 10. The property owner disputes the lien amount claiming only \$90,000 is owed. The owner wants to sell the property and needs to clear the title. The owner posts a surety bond. At what amount should the bond be set, and based on which figure — the lien amount or the disputed amount?

- A. At 150% of the \$90,000 disputed amount (\$135,000) because the bond is based on the amount the owner admits is owed
- B. At 100% of the lien amount (\$135,000) because the bond exactly matches the filed lien
- C. At 125% of the disputed amount (\$112,500) representing a compromise between the two figures
- D. At 125% to 150% of the full \$135,000 lien amount because the bond must secure the contractor's full claim as filed not the owner's disputed figure

27. Under the percentage of completion method, a contractor has a project with a contract price of \$1,600,000, original estimated total cost of \$1,280,000, and costs incurred to date of \$960,000. The contractor has not received any change orders. What is the percentage complete, expected total profit, and revenue recognized to date?

- A. 75% complete, expected profit \$320,000, revenue \$1,200,000
- B. 75% complete, expected profit \$320,000, revenue \$1,200,000 calculated as  $(\$960,000 \div \$1,280,000) \times \$1,600,000$
- C. 60% complete, expected profit \$640,000, revenue \$960,000
- D. 80% complete, expected profit \$320,000, revenue \$1,280,000

28. A contractor's balance sheet shows current assets of \$475,000, current liabilities of \$350,000, noncurrent assets of \$290,000, longterm liabilities of \$185,000, and owner's equity of \$230,000. What are the working capital, current ratio, debt to equity ratio, and bonding capacity at fifteen times working capital?

- A. Working capital \$125,000, current ratio 1.36, debt to equity 2.33, bonding capacity \$1,875,000
- B. Working capital \$475,000, current ratio 1.36, debt to equity 1.52, bonding capacity \$7,125,000
- C. Working capital \$125,000, current ratio 0.74, debt to equity 2.33, bonding capacity \$1,875,000
- D. Working capital \$125,000, current ratio 1.36, debt to equity 1.52, bonding capacity \$1,875,000

29. Under OSHA's excavation standard, a contractor is working in a trench that is ten feet deep in Type A soil. The contractor uses a combination of sloping and benching. OSHA's maximum allowable slope for Type A soil is threequarter horizontal to one vertical (53 degrees from horizontal). The contractor slopes the upper four feet at 53 degrees and benches the lower six feet in twofoot vertical steps. Is this configuration compliant?

- A. Yes because any combination of sloping and benching is acceptable in Type A soil regardless of the configuration
- B. No because benching is not permitted in Type A soil and only sloping or shoring can be used
- C. Yes because the slope angle meets the Type A maximum and the benching configuration with vertical steps not exceeding the height limitations for Type A soil is within OSHA's tabulated data requirements
- D. No because the total trench depth of ten feet exceeds the maximum depth for sloping and benching in any soil type

30. An Ohio employer hires a new employee on Tuesday. The employee presents a Social Security card and a state driver's license for the I9 form. The employer completes Section 1 on Tuesday and Section 2 on Friday — three business days later. On the following Monday, the employer discovers the employee's driver's license expired two weeks ago. What compliance issue exists?

- A. No issue because the I9 was completed within the required timeframe and expired documents are acceptable for one year
- B. No issue because the threebusinessday completion was timely but the employer must obtain a valid unexpired document
- C. A violation occurred because the employer should have verified the expiration date when examining the documents during the I9 process and an expired driver's license is not acceptable for identity verification
- D. The employer must terminate the employee immediately because an expired driver's license constitutes fraud

31. A nonexempt plumbing apprentice earns \$24.00 per hour. The apprentice works fortyfive hours in a single workweek and receives a \$150 nondiscretionary attendance bonus for the week. Under the FLSA, what is the correct total gross pay?

- A. \$1,080 calculated as fortyfive hours at \$24.00 with no overtime because apprentices are exempt from FLSA overtime
- B. \$1,290 calculated as forty hours at \$24.00 plus five hours at \$36.00 overtime plus the \$150 bonus treated as a separate nonovertime payment
- C. \$1,230 calculated as fortyfive hours at \$24.00 plus the \$150 bonus with no overtime because the bonus compensates for the extra hours
- D. Approximately \$1,299 calculated by including the \$150 bonus in the regular rate computation for the workweek

32. An Ohio contractor operating as a Ccorporation earns \$500,000 in taxable income, pays twentyone percent corporate tax (\$105,000), and distributes \$200,000 in dividends to the sole shareholder. The shareholder is in the twenty percent qualified dividend tax bracket. What is the total combined tax burden on the \$200,000 that was distributed?

- A. \$42,000 representing only the corporate tax on the distributed amount ( $\$200,000 \times 21\%$ )
- B. \$40,000 representing only the shareholder's dividend tax ( $\$200,000 \times 20\%$ )
- C. \$73,600 representing the corporate tax on the distributed portion (\$42,000) plus the shareholder's dividend tax on the aftertax distribution ( $\$158,000 \times 20\% = \$31,600$ )
- D. The total combined tax is the corporatelevel tax attributable to the \$200,000 distribution plus the shareholderlevel tax on the aftercorporatetax amount received

33. An Ohio employer with fortyfive employees terminates a fiftysevenyearold project superintendent and replaces the position with a thirtytwoyearold worker. The terminated superintendent had received satisfactory performance reviews for six consecutive years. The employer claims the termination was due to a "departmental restructuring." No other positions were eliminated and the job duties remained identical. Under which antidiscrimination laws can the superintendent file a complaint?

- A. Both the Age Discrimination in Employment Act (employers with twenty or more employees) and the Ohio Civil Rights Act (employers with four or more employees) prohibit age discrimination against workers forty and older
- B. Only the Ohio Civil Rights Act because employers with fewer than fifty employees are exempt from the ADEA
- C. Only Title VII because age discrimination is classified as a form of national origin discrimination

D. Neither law because the employer's restructuring explanation is an absolute defense to age discrimination claims

34. A contractor on a DavisBacon covered project employs a carpenter at \$42.00 per hour base rate. The prevailing wage determination specifies \$42.00 base plus \$19.80 in fringe benefits. The contractor provides health insurance valued at \$8.50 per hour, a pension contribution of \$4.25 per hour, and vacation pay of \$2.00 per hour. The contractor does not pay the remaining fringe shortfall. What is the perhour deficiency?

A. Zero because the contractor is paying the correct base rate and providing qualifying fringe benefits totaling \$14.75

B. \$5.05 per hour representing the difference between the required \$19.80 and the \$14.75 in qualifying benefits provided

C. \$19.80 because none of the provided benefits qualify under DavisBacon fringe requirements

D. \$5.05 per hour because the contractor is providing \$14.75 in qualifying fringe benefits but owes \$19.80 leaving a shortfall that must be paid as additional cash wages or benefits

35. A contractor on a commercial project uses the percentageofcompletion method. The contract price is \$980,000. Original estimated cost is \$784,000. Costs to date are \$588,000. A change order adds \$60,000 to the contract price and \$50,000 to the estimated cost. What is the revised revenue recognized to date?

A. \$735,000 calculated as the original percentage complete of seventyfive percent applied to the original contract price

B. \$734,976 calculated as the revised percentage complete of 70.53% ( $\$588,000 \div \$834,000$ ) multiplied by the revised contract price of \$1,040,000

C. \$588,000 equal to costs incurred because revenue matches cost until the change order is executed

D. \$780,000 calculated as seventyfive percent of the revised contract price

36. Under OSHA's Hazard Communication Standard, a contractor on a commercial project receives a chemical product shipment. Two of the eight containers arrive without GHScompliant labels. The contractor's superintendent accepts the delivery. Workers begin using the unlabeled containers the same day. What OSHA violations have occurred?

- A. One labeling violation for the two containers because multiple unlabeled containers from the same shipment constitute a single violation
- B. A training violation only because the workers should have been instructed not to use unlabeled containers
- C. Multiple violations including using containers without GHS-compliant labels and potentially exposing workers to unknown chemical hazards without adequate hazard communication
- D. No violations because the employer's obligation is limited to maintaining SDSs and the labeling requirement applies only to the manufacturer

37. A contractor's project manager tracks earned value at month twelve of a sixteen-month commercial project. Planned value: \$1,080,000. Earned value: \$1,020,000. Actual cost: \$1,070,000. The total project budget is \$1,440,000. What is the cost performance index, schedule performance index, and the estimated cost at completion if current trends continue?

- A. CPI 0.953, SPI 0.944, estimated cost at completion approximately \$1,510,911
- B. CPI 1.05, SPI 0.944, estimated cost at completion approximately \$1,371,429
- C. CPI 0.953, SPI 1.06, estimated cost at completion approximately \$1,510,911
- D. CPI 1.01, SPI 0.96, estimated cost at completion approximately \$1,425,743

38. A contractor on a commercial project completes the HVAC installation and the system is commissioned. During commissioning, the HVAC system meets all specified performance criteria — temperature control, airflow rates, and humidity levels. The architect issues the Certificate of Substantial Completion. Eight months later, the building owner reports that the system is not maintaining adequate temperature during peak summer conditions. Investigation reveals that the system was properly installed per the specifications but the engineer's design calculations did not account for the building's solar heat gain on the west elevation. Who is responsible?

- A. The contractor because the contractor warranted the HVAC system's performance for one year after substantial completion
- B. The building owner because the owner approved the design and accepted the system at commissioning
- C. The contractor and engineer share responsibility equally because both participated in the system design and installation

D. The design engineer because the inadequate heat gain calculation is a design error and the contractor installed the system per the specifications which were deficient

39. A contractor's employee sustains a workrelated knee injury. The company physician recommends surgery. The employee refuses surgery, choosing instead to manage the condition with physical therapy and bracing. The employee files a workers' compensation claim with the Ohio BWC. Can the BWC reduce or deny benefits because the employee refused surgery?

A. No because Ohio workers' compensation does not penalize employees for medical treatment decisions

B. The BWC may reduce or suspend benefits if the employee unreasonably refuses recommended medical treatment that would likely improve the condition because Ohio law allows the BWC to consider an employee's refusal of treatment in determining benefit eligibility

C. Yes and the employee's benefits are automatically terminated upon refusal of any recommended treatment

D. No but the employer can terminate the employee for refusing recommended medical treatment

40. An Ohio employer operates a commercial plumbing business with twenty employees. Three employees are classified as independent contractors even though they work fulltime for the employer, use the employer's tools, follow the employer's schedule, and receive detailed instructions on installation methods. An Ohio BWC audit reclassifies the three workers as employees. In addition to back workers' compensation premiums, what other consequences may the employer face?

A. Only a letter of noncompliance from the BWC with no financial consequences beyond the back premiums

B. Only federal IRS penalties for unpaid FICA because state agencies do not enforce worker classification

C. Back workers' compensation premiums plus penalties and interest from the BWC, back FICA and income tax withholding from the IRS, back state income tax withholding from the Ohio Department of Taxation, and back unemployment insurance from the Ohio Department of Job and Family Services

D. Only back workers' compensation premiums because the BWC is the sole enforcement agency for worker misclassification

41. A contractor's job cost report at month eleven of a fifteenmonth project shows: original budget \$1,100,000, approved changes \$85,000, revised budget \$1,185,000, costs to date \$920,000, estimated to complete \$310,000, projected total \$1,230,000. The contract price is \$1,300,000. What is the projected profit and what action should the project manager take?

A. Projected profit is \$70,000 ( $\$1,300,000 - \$1,230,000$ ) but the project exceeds the revised budget by \$45,000 ( $\$1,230,000 - \$1,185,000$ ) and the project manager should investigate the overrun source and implement corrective actions on the remaining \$310,000 of work

B. Projected profit is \$185,000 because the contract price exceeds costs to date by that amount

C. The project is unprofitable because the projected total exceeds the contract price

D. The projected profit is \$115,000 calculated as the revised budget minus costs to date

42. A contractor files a mechanic's lien on a commercial property for \$88,000 on March 1. The contractor serves the owner on March 28. The owner does nothing. Five years and nine months later — on December 1 of Year 5 — the contractor files a foreclosure lawsuit. Is the lawsuit timely?

A. No because Ohio requires foreclosure within five years of the lien filing date

B. No because Ohio requires foreclosure within three years of the lien filing date

C. Yes because the lawsuit was filed within six years of the lien filing date

D. Yes because Ohio allows six years from the date of lien filing and the lawsuit at five years and nine months is within the sixyear enforcement window

43. Under the Miller Act, what minimum contract value triggers the requirement for a prime contractor on a federal construction project to furnish both performance and payment bonds?

A. \$50,000 for both types of bonds

B. \$150,000 for both performance and payment bonds

C. \$250,000 for performance bonds and \$100,000 for payment bonds

D. \$500,000 for both types of bonds

44. An OSHA compliance officer issues a citation for a willful violation of the fall protection standard on a commercial roofing project. The contractor had been cited for the identical violation on two previous projects within the past three years. The current citation carries a proposed penalty of \$156,000. The contractor contests the classification arguing that correcting the violation on the previous projects demonstrates good faith. Will the willful classification be sustained?

- A. No because correcting previous violations demonstrates good faith which eliminates the willful classification
- B. No because the willful classification requires the violation to occur on the same project as the previous citations
- C. Yes because repeated citations for the identical violation demonstrate a pattern of knowing disregard for the fall protection standard supporting the willful classification
- D. Yes but the penalty must be reduced to the serious violation amount because the contractor corrected previous violations

45. A contractor on a commercial project reaches substantial completion and the architect issues the Certificate of Substantial Completion on June 1. The contract provides for a oneyear warranty. During the warranty period, the owner reports that three rooftop HVAC units are producing excessive vibration. The contractor investigates and determines the vibration is caused by the building's structural frame resonating with the HVAC equipment — a design coordination issue between the structural engineer and the mechanical engineer. The equipment is installed correctly per the specifications. What is the contractor's warranty obligation?

- A. The contractor has no obligation to correct a design coordination deficiency because the warranty covers workmanship defects not design errors and the equipment was installed correctly per the approved specifications
- B. The contractor must correct the vibration issue regardless of cause because the warranty covers all building performance issues during the warranty period
- C. The contractor must split the repair cost equally with the design engineers
- D. The contractor must provide a temporary fix during the warranty period and pursue the design engineers for reimbursement

46. A contractor's income statement shows revenue of \$4,200,000, cost of revenue of \$3,360,000, and general overhead of \$630,000. What are the gross profit margin, net operating income, net profit margin, and breakeven revenue?

- A. Gross margin 20%, net income \$840,000, net margin 20%, breakeven \$3,150,000
- B. Gross margin 15%, net income \$210,000, net margin 5%, breakeven \$4,200,000
- C. Gross margin 20%, net income \$210,000, net margin 5%, breakeven \$4,200,000
- D. Gross margin 20%, net income \$210,000, net margin 5%, breakeven \$3,150,000

47. An Ohio contractor's workers' compensation annual base premium is \$48,000. The contractor's EMR improves from 1.20 to 0.80 over four years through a comprehensive safety program. What is the total annual premium swing between the old and new EMR?

- A. \$9,600 calculated as the base premium multiplied by the EMR difference of 0.20
- B. \$19,200 calculated as the difference between the premium at 1.20 (\$57,600) and the premium at 0.80 (\$38,400)
- C. \$38,400 calculated as the premium at the new 0.80 EMR
- D. \$48,000 because the premium returns to the base amount at an EMR of 1.0

48. A contractor on a commercial project submits the final payment application for \$94,000 in retainage after completing all punch list items and submitting all closeout documents. The architect issues the final certificate. The contract requires payment within thirty days. On Day 25, the owner sends a letter deducting \$6,000 for "project management costs the owner incurred due to the contractor's scheduling issues." The contract does not authorize this deduction. Can the owner make this deduction?

- A. Yes because the owner incurred actual costs related to the contractor's performance
- B. Yes because the deduction was made before the thirtyday payment deadline
- C. No because the deduction is not authorized by the contract and the architect has certified the work as complete — the owner must pay the full \$94,000 and pursue any claims separately
- D. No but the owner can extend the payment deadline by thirty additional days to investigate the scheduling issues

49. A contractor operating as a partnership with two equal partners earns \$580,000 in net income. Partner A makes quarterly estimated tax payments totaling \$72,000. Partner B makes quarterly estimated tax payments totaling \$35,000. At filing time, each partner's total federal tax liability is \$68,000. What is each partner's filing result?

- A. Partner A has overpaid by \$4,000 and will receive a refund while Partner B has underpaid by \$33,000 and owes the balance plus potential estimated tax underpayment penalties
- B. Both partners owe \$68,000 because estimated payments are credited to the partnership not to individual partners
- C. Partner A receives a \$4,000 credit applied to next year's estimated taxes while Partner B owes \$33,000 with no penalties
- D. Both partners split the combined \$107,000 in estimated payments equally at \$53,500 each

50. A contractor on a commercial project completes all work and the project is occupied by the owner. The contractor's oneyear warranty from substantial completion is in effect. During month ten of the warranty, the owner discovers that a section of the parking lot is settling due to inadequate compaction of the subgrade. The owner notifies the contractor. The contractor argues that the owner's heavy truck traffic on the parking lot caused the settlement not a compaction deficiency. The owner's geotechnical consultant performs testing and confirms that the subgrade compaction is below the specification requirement. What is the contractor's warranty obligation?

- A. No obligation because parking lot settlement from traffic loading is a maintenance issue not a warranty defect
- B. No obligation because the geotechnical consultant's testing is biased since the consultant was retained by the owner
- C. The contractor should challenge the test results through independent testing before accepting responsibility
- D. The contractor must repair the settlement because the geotechnical testing confirms the compaction is below the specification requirement which constitutes a workmanship defect covered by the warranty

## Practice Exam 20: Answer Key and Explanations

**1. B** — A joint venture is a business arrangement between two or more parties for a specific project or limited purpose. Unlike a general partnership which implies an ongoing business relationship, a joint

venture is limited in scope and duration to the particular project. When the hospital project is complete, the joint venture terminates — the two contractors do not become permanent business partners.

**2. D** — As a sole proprietor, FICA on \$280,000:  $\$280,000 \times 15.3\% = \$42,840$ . Under the Scorp, FICA applies only to the \$130,000 salary:  $\$130,000 \times 15.3\% = \$19,890$ . The \$150,000 in distributions avoids FICA. Savings:  $\$42,840 - \$19,890 = \$22,950$ . The SEPIRA contribution reduces income tax but does not affect the FICA savings calculation.

**3. C** — Growing from \$900,000 to \$3,200,000 requires significantly more management capacity — additional project managers, estimators, superintendents, and administrative support. Two people managing \$900,000 of work cannot effectively manage \$3,200,000 without additional management infrastructure. The plan fails to address the organizational scaling needed to support the projected growth.

**4. A** — The OCILB requires continuing education as a condition of license renewal. The contractor must complete the required CE hours through an approved provider and submit proof of completion with the renewal application. Failing to complete CE before the renewal deadline may result in the license not being renewed.

**5. B** — Each OCILB trade classification is a separate license with a defined scope. An electrical license authorizes electrical work only — it does not extend to HVAC installation even though HVAC systems contain electrical components. The contractor must hold a separate OCILB HVAC license to perform commercial HVAC work. Working outside the licensed trade classification violates ORC Chapter 4740.

**6. D** — Direct costs:  $\$168,000 + \$94,000 + \$18,000 + \$55,000 = \$335,000$ . Job overhead (8%):  $\$26,800$ . General overhead (12%):  $\$40,200$ . Total cost:  $\$335,000 + \$26,800 + \$40,200 = \$402,000$ . To achieve a ten percent margin on selling price:  $\$402,000 \div 0.90 = \$446,667$ , approximately  $\$446,444$ . A ten percent markup on cost ( $\$442,200$ ) would yield only a 9.1% margin on selling price.

**7. A** — The surety's obligation under a bid bond is limited to the owner's actual damages — the difference between the withdrawing bid and the next lowest bid — up to the penal amount of the bond. The actual damage is \$60,000 (the next lowest bid is \$60,000 higher). Since \$60,000 is less than the \$82,000 penal amount, the surety pays \$60,000.

**8. C** — A nodamagefordelay clause provides that the contractor's sole remedy for delays is a time extension with no monetary compensation. Under standard enforcement, the contractor receives the sixweek time extension but cannot recover the \$72,000 in delay costs. Some jurisdictions recognize exceptions for active interference or bad faith, but the general rule limits recovery to time only.

**9. B** — The contractor proceeded with the foundation pour without a column footing before receiving the RFI response. When conflicting documents exist, a reasonable contractor would have included the footing as a precaution — it is far less expensive to install a footing that may not be needed than to retrofit one after the concrete is poured. Proceeding at risk means the contractor bears the cost of the retrofit.

**10. C** — The categorization shows that twenty of thirtyone changes (ownerdirected plus design revisions) originated from the owner and architect — not from the contractor. The remaining eleven changes (unforeseen conditions plus code changes) were beyond anyone's control. This data

demonstrates that the contractor is not driving the changes and the volume reflects decisions and conditions outside the contractor's scope.

**11. D** — The parallel path originally had twelve days of float. Activity G's sixteenday delay consumed all twelve days of float and exceeded it by four days. The four excess days extend the project from 160 to 164 days. The parallel path has now become the critical path with zero float, and the original critical path has four days of float.

**12. A** — The fire caulking deficiency is a coderequired firestopping that must be installed regardless of whether it appeared on the original punch list. The architect cannot waive fire code requirements. The contractor must correct the three improperly resolved items and install the fire caulking to bring the work into compliance.

**13. C** — The \$3,500,000 claim is from a single occurrence. The CGL peroccurrence limit caps the primary payment at \$2,000,000. The remaining \$1,500,000 exceeds the underlying peroccurrence limit and is covered by the \$5,000,000 umbrella policy. Total coverage: \$2,000,000 (CGL) + \$1,500,000 (umbrella) = \$3,500,000 — fully covering the claim.

**14. B** — Annual premium at 1.45 EMR:  $\$72,000 \times 1.45 = \$104,400$ . This represents a \$21,600 increase over the current premium at 1.15 EMR (\$82,800). The \$250,000 claim drives the EMR upward for multiple years, significantly increasing annual premiums and potentially disqualifying the contractor from projects with EMR thresholds.

**15. D** — Character is the surety's assessment of the contractor's integrity, honesty, and ethical standards. Allegations of bid rigging and kickbacks directly attack the contractor's character — the foundation of the surety's trust. Even strong financials (Capital) and a proven track record (Capacity) cannot overcome serious character concerns because the surety must trust the contractor to act honestly.

**16. A** — The anchorage is eight feet above the platform, which is above the worker's Dring. Total fall distance: free fall to the lanyard's full extension (approximately two feet since the anchorage is overhead), plus up to threeandahalf feet of deceleration distance, plus a safety factor. With the anchorage well above the worker, the total fall distance is approximately six to seven feet — well within the fourteenfoot clearance to the lower level.

**17. C** — At least three distinct violations: the trench box extends only five feet in an eightfoot trench leaving three feet unprotected (protective system violation); no ladder or other egress in a trench exceeding four feet (means of egress violation); and the competent person is offsite during active trench operations (competent person violation). Each is an independent regulatory requirement.

**18. D** — The initial treatment — wound cleaning, antibiotic ointment, and adhesive bandage — is classified as first aid. However, when the physician prescribes oral antibiotics three days later, the treatment escalates to medical treatment beyond first aid. Prescription medication triggers recordability regardless of whether the initial treatment was first aid. The injury becomes recordable at the point of prescription.

**19. A** — The FMLA defines qualifying family members as spouse, child, and parent. Domestic partners — unless legally married — are not included as qualifying family members under the FMLA. The employer's denial is proper because caring for a domestic partner does not qualify as FMLA leave unless the domestic partner meets the definition of spouse under applicable law.

**20. B** — The asbuilt drawings documenting the actual locations of the relocated electrical feeder and water main are critical for future safety. Anyone excavating in the area will rely on available drawings to locate utilities. If they use the original design drawings, they will dig in the wrong location — potentially striking the feeder (electrocution risk) or the water main (flooding). The asbuilt prevents these dangerous errors.

**21. C** — This pattern describes a classic cash flow squeeze: the contractor is collecting slowly (receivables up 40%), paying more to suppliers (payables up 55%), and burning through cash (down 30%) while revenue growth (10%) is insufficient to fund the working capital demands. This trajectory can lead to an inability to meet payroll, pay suppliers, or fund operations.

**22. B** — The Ohio CAT is assessed at the business entity level, not at the individual or household level. The contractor's electrical business files its own CAT return based on \$3,700,000 in gross receipts. Taxable portion above \$1,000,000:  $\$2,700,000 \times 0.0026 = \$7,020$  plus the approximately \$800 minimum tax = \$7,820. The spouse's cleaning business files separately.

**23. D** — Federal government projects are exempt from state sales tax under the Supremacy Clause. The contractor may seek a refund from the distributor by presenting the federal exemption documentation or file a claim with the Ohio Department of Taxation for the sales tax paid on materials installed on the federally exempt project.

**24. A** — Notice of Furnishing: served Day 21 (within twentyone days ✓). Lien affidavit: filed fifty-nine days after last furnishing (within sixty days ✓). Service on owner: twenty-eight days after filing (within thirty days ✓). All three procedural steps were completed within their respective statutory deadlines, preserving full lien rights.

**25. C** — The first-tier subcontractor's unconditional waiver releases only that subcontractor's lien rights. The sub-subcontractor is a separate party with independent statutory lien rights. The sub-subcontractor properly served a Notice of Furnishing and has the right to file a lien regardless of what waivers exist between the GC and the first-tier subcontractor.

**26. D** — The bond must be based on the full lien amount as filed — \$135,000 — not the owner's disputed figure of \$90,000. The purpose of the bond is to substitute for the property as security for the contractor's full claim. Setting the bond at 125% to 150% of \$135,000 (\$168,750 to \$202,500) covers the claim plus potential interest and costs.

**27. B** — Percentage complete:  $\$960,000 \div \$1,280,000 = 75\%$ . Expected total profit:  $\$1,600,000 - \$1,280,000 = \$320,000$ . Revenue to date:  $75\% \times \$1,600,000 = \$1,200,000$ . With no change orders, the calculation uses the original contract price and estimated total cost. The contractor has recognized \$1,200,000 in revenue against \$960,000 in costs, yielding \$240,000 in gross profit to date ( $75\% \times \$320,000$ ).

**28. A** — Working capital:  $\$475,000 - \$350,000 = \$125,000$ . Current ratio:  $\$475,000 \div \$350,000 = 1.36$ . Total liabilities:  $\$350,000 + \$185,000 = \$535,000$ . Debt-to-equity:  $\$535,000 \div \$230,000 = 2.33$ . Bonding capacity:  $15 \times \$125,000 = \$1,875,000$ . The 2.33 debt-to-equity is on the higher side but within the range many sureties will accept.

**29. C** — OSHA allows combinations of sloping and benching in Type A soil. The slope angle of 53 degrees matches the maximum allowable for Type A. The benching configuration with two-foot

vertical steps in the lower portion must comply with OSHA's tabulated data for Type A soil, which allows vertical faces up to specified heights between benches. This combination meets the standard's requirements.

**30. D** — An expired driver's license is not acceptable for identity verification on the I9 form. The employer should have checked the expiration date when examining the document during the I9 process. The employer must obtain a valid unexpired identity document from the employee. The I9 requires documents to be unexpired at the time of examination.

**31. D** — A nondiscretionary bonus must be included in the regular rate. Total straighttime earnings:  $(45 \times \$24) + \$150 = \$1,080 + \$150 = \$1,230$ . Regular rate:  $\$1,230 \div 45 = \$27.33$ . Overtime premium:  $\$27.33 \times 0.5 \times 5 = \$68.33$ . Total:  $\$1,230 + \$68.33 =$  approximately  $\$1,298.33$ , roughly  $\$1,299$ . Including the bonus increases both the regular rate and the overtime premium.

**32. C** — Corporate tax on the \$200,000 distributed portion:  $\$200,000 \times 21\% = \$42,000$ . Aftertax amount distributed:  $\$200,000 - \$42,000 = \$158,000$ . Shareholder dividend tax:  $\$158,000 \times 20\% = \$31,600$ . Total combined tax on the distributed \$200,000:  $\$42,000 + \$31,600 = \$73,600$ . This demonstrates the double taxation burden of Ccorporation distributions.

**33. A** — The ADEA covers employers with twenty or more employees (this employer has fortyfive ✓), and the Ohio Civil Rights Act covers employers with four or more employees (✓). Both laws prohibit age discrimination against workers forty and older. The fiftysevenyearold superintendent can file complaints under both federal and state law. Satisfactory reviews and immediate replacement by a substantially younger worker undermine the restructuring explanation.

**34. B** — Required fringe: \$19.80 per hour. Provided: health insurance \$8.50 + pension \$4.25 + vacation \$2.00 = \$14.75. Shortfall:  $\$19.80 - \$14.75 = \$5.05$  per hour. The contractor must either provide additional qualifying benefits or pay the \$5.05 difference as additional cash wages. Paying the correct base rate does not excuse the fringe benefit deficiency.

**35. B** — Revised contract price:  $\$980,000 + \$60,000 = \$1,040,000$ . Revised total estimated cost:  $\$784,000 + \$50,000 = \$834,000$ . Revised percentage complete:  $\$588,000 \div \$834,000 = 70.50\%$ . Revised revenue:  $70.50\% \times \$1,040,000 = \$733,200$ , approximately  $\$734,976$  with precise decimal calculation. The change order affects both the contract price and the percentageofcompletion calculation.

**36. C** — Multiple violations exist: workers used containers without GHScompliant labels, which violates the labeling requirement. Workers were potentially exposed to unknown chemical hazards without adequate hazard communication. The employer has the obligation to ensure all containers are properly labeled before workers use them — accepting and using unlabeled containers violates multiple provisions of the HazCom standard.

**37. A** — CPI:  $\$1,020,000 \div \$1,070,000 = 0.953$ . SPI:  $\$1,020,000 \div \$1,080,000 = 0.944$ . Estimated cost at completion:  $\$1,440,000 \div 0.953 =$  approximately  $\$1,510,911$ . The CPI below 1.0 indicates the project is over budget, and the SPI below 1.0 indicates the project is behind schedule. At current trends, the project will exceed the \$1,440,000 budget by approximately \$70,911.

**38. D** — The contractor installed the HVAC system correctly per the approved specifications, and the system met all performance criteria during commissioning. The failure during peak summer conditions

is caused by the engineer's inadequate solar heat gain calculations — a design error, not a workmanship defect. The design engineer bears responsibility for the deficient design.

**39. B** — Ohio workers' compensation law allows the BWC to consider an employee's refusal of recommended medical treatment when determining benefit eligibility. If the recommended surgery would likely improve the employee's condition and the refusal is deemed unreasonable, the BWC may reduce or suspend wage replacement benefits. Medical benefits for the treatment the employee does accept continue.

**40. C** — Worker misclassification triggers enforcement from multiple agencies simultaneously: BWC for back workers' compensation premiums plus penalties and interest; IRS for back FICA and federal income tax withholding; Ohio Department of Taxation for back state income tax withholding; and Ohio Department of Job and Family Services for back unemployment insurance contributions. The cumulative financial exposure can be devastating.

**41. A** — Projected total:  $\$920,000 + \$310,000 = \$1,230,000$ . Revised budget:  $\$1,185,000$ . Overrun:  $\$45,000$ . Contract price:  $\$1,300,000$ . Projected profit:  $\$1,300,000 - \$1,230,000 = \$70,000$ . The project exceeds the revised budget by  $\$45,000$  but remains profitable at  $\$70,000$ . The project manager should investigate the overrun and implement corrective actions on the remaining work.

**42. D** — Ohio allows six years from the date the mechanic's lien affidavit was filed to commence a foreclosure action. The lien was filed on March 1, and the lawsuit was filed on December 1 of Year 5 — five years and nine months later. This is within the six-year enforcement window with approximately three months remaining.

**43. B** — The Miller Act requires prime contractors on federal construction projects exceeding  $\$150,000$  to furnish both a performance bond and a payment bond. This  $\$150,000$  threshold applies to the total contract value and is the standard Miller Act trigger for bonding requirements.

**44. C** — Repeated citations for the identical fall protection violation across multiple projects within the lookback period demonstrate a pattern of knowing disregard for the standard. Correcting previous violations after being cited does not prevent the willful classification if the same violation recurs — it actually strengthens the willful finding because the employer was on notice and still failed to comply.

**45. A** — The warranty covers defects in workmanship — not design errors. The contractor installed the HVAC equipment correctly per the approved specifications and the system passed commissioning. The vibration is caused by a design coordination failure between the structural and mechanical engineers, not by defective installation. The contractor has no warranty obligation for design deficiencies.

**46. D** — Gross profit:  $\$4,200,000 - \$3,360,000 = \$840,000$ . Gross margin:  $\$840,000 \div \$4,200,000 = 20\%$ . Net operating income:  $\$840,000 - \$630,000 = \$210,000$ . Net margin:  $\$210,000 \div \$4,200,000 = 5\%$ . Breakeven:  $\$630,000 \div 0.20 = \$3,150,000$ . Current revenue of  $\$4,200,000$  is above the  $\$3,150,000$  breakeven.

**47. B** — Premium at 1.20 EMR:  $\$48,000 \times 1.20 = \$57,600$ . Premium at 0.80 EMR:  $\$48,000 \times 0.80 = \$38,400$ . Annual swing:  $\$57,600 - \$38,400 = \$19,200$ . The 0.40 EMR improvement produces  $\$19,200$  in annual premium savings — a substantial financial return on the safety program investment.

**48. C** — The \$6,000 deduction for "project management costs" is not authorized by the contract, and the architect has certified the work as complete through the final certificate. The owner cannot unilaterally deduct unauthorized charges from retainage. The owner must pay the full \$94,000 retainage and pursue any claim for project management costs through a separate proceeding.

**49. A** — Each partner's estimated tax payments are credited to their individual tax accounts, not to the partnership. Partner A paid \$72,000 against a \$68,000 liability — overpaid by \$4,000 and will receive a refund. Partner B paid \$35,000 against a \$68,000 liability — underpaid by \$33,000 and owes the balance plus potential estimated tax underpayment penalties.

**50. D** — The geotechnical testing confirms that the subgrade compaction is below the specification requirement — a workmanship defect in the contractor's grading and compaction work. The contractor's argument that traffic loading caused the settlement is contradicted by the objective test results showing inadequate compaction. The warranty covers workmanship defects, and insufficient compaction is a clear workmanship failure.