



AT 111 1st SEM MID-TERM EXAM

NAME: _____ Yr&Sec: _____ SCORE: _____

Multiple Choice

INSTRUCTION: Instructions: Select and encircle the answer that is most accurate and complete. Some options may be

I. Remembering (8 items)

1. What is the main function of an engine?
 - a) To store fuel
 - b) To convert heat energy into mechanical force
 - c) To cool the system
 - d) To hold moving parts
2. An engine that burns its fuel inside the cylinder is called:
 - a) External combustion engine
 - b) Diesel turbine
 - c) Internal combustion engine
 - d) Steam engine
3. Which is a classification of engine based on fuel?
 - a) Inline or V-type
 - b) Gasoline or Diesel
 - c) L-head or F-head
 - d) Water-cooled or Air-cooled
4. The piston's distance from TDC to BDC is called:
 - a) Cycle
 - b) Stroke
 - c) Compression
 - d) Ignition
5. What tool is used to install or remove nuts and bolts?
 - a) Screwdriver
 - b) Wrench
 - c) Pliers
 - d) Punch
6. Which screwdriver has two crossing blades?
 - a) Standard
 - b) Phillips
 - c) Torx
 - d) Reed and Prince
7. Which hammer is most common in automotive work?
 - a) Sledge
 - b) Ball peen
 - c) Brass
 - d) Rubber mallet
8. What is mushrooming in chisels?
 - a) Sharpened edge
 - b) Enlarged top after hammering
 - c) Rusting of surface
 - d) Shaping with file
- b) Both valves are closed
- c) Only exhaust valve is open
- d) Only intake valve is open
11. Why is water-cooling preferred in larger engines?
 - a) Simpler construction
 - b) Better heat dissipation
 - c) Less pollution
 - d) Lighter engine weight
12. Why should wrenches fit snugly on bolts?
 - a) Prevent slipping and rounding of bolt heads
 - b) Increase leverage
 - c) Reduce torque
 - d) Speed up rotation
13. Why is a toolbox important?
 - a) It decorates the shop
 - b) Organizes and protects tools
 - c) Replaces tools
 - d) Increases torque
14. What is the role of a spark plug?
 - a) Compress air-fuel mixture
 - b) Ignite air-fuel mixture
 - c) Remove exhaust gases
 - d) Cool the cylinder
15. Why is the ball peen hammer commonly used?
 - a) Multi-use for shaping and striking
 - b) Light blows only
 - c) Works only on rubber
 - d) More decorative
16. Why are files not pressed hard during filing?
 - a) To avoid overheating and breaking
 - b) To file faster
 - c) To sharpen chisels
 - d) To round edges
17. Which stroke involves opening of exhaust valve in diesel engines?
 - a) Intake
 - b) Compression
 - c) Power
 - d) Exhaust

III. Applying (9 items)

II. Understanding (9 items)

9. Why is a two-stroke engine less fuel-efficient than a four-stroke engine?
 - a) More valves
 - b) Burns oil with fuel
 - c) Slower piston motion
 - d) Uses larger crankshaft
10. What happens during the compression stroke in a gasoline engine?
 - a) Both valves are open
18. Which cooling method would you recommend for a motorcycle engine?
 - a) Water cooling
 - b) Air cooling
 - c) Oil cooling
 - d) Steam cooling
19. A mechanic selects a line wrench to loosen brake line fittings. Why?
 - a) To hammer on bolts
 - b) To fit around tubing without damage
 - c) To cut bolts
 - d) To hold wires

... tool should be chosen to grip and bend small wires?

- a) Locking pliers
- b) Needle-nose pliers
- c) Diagonal cutters
- d) Channel locks

21. A car technician notices worn-out spark plugs. What will likely happen?
- a) Stronger ignition
 - b) Engine misfiring
 - c) More efficient combustion
 - d) Improved cooling
22. If a technician wants to remove rust and old gaskets, which tool is best?
- a) Screwdriver
 - b) File
 - c) Scraper or wire brush
 - d) Pliers
23. Which tool is suitable for cutting frozen bolts?
- a) Hacksaw
 - b) File
 - c) Snap ring pliers
 - d) Vise
24. A socket with a 3/8-inch drive size fits into:
- a) A wrench
 - b) A ratchet handle
 - c) A vise
 - d) A screwdriver
25. When removing a very large nut, which wrench type is best?
- a) Allen wrench
 - b) Channel lock pliers
 - c) Combination wrench
 - d) Box-end wrench
26. A mechanic holds a workpiece steady for drilling. Which tool is used?
- a) Clamp
 - b) Vise
 - c) Mallet
 - d) Snap ring pliers

IV. Analyzing (12 Items)

27. Compare: Two-stroke vs. Four-stroke – which lasts longer?
- a) Two-stroke, because it's simpler
 - b) Four-stroke, because parts wear slower
 - c) Both are equal
 - d) Neither
28. Why does diesel ignite without a spark plug?
- a) It uses more valves
 - b) Compression raises air temperature enough for ignition
 - c) Diesel fuel is pre-heated
 - d) Exhaust gases ignite it
29. Which is the relationship between inline and V-type engines?
- a) Both are fuel classifications
 - b) Both are cylinder arrangements
 - c) Both are valve arrangements
 - d) Both are cooling methods
30. Which scenario best explains why air cooling is limited to small engines?

- a) Larger engines produce more heat than air alone can dissipate
- b) Water is heavier than air
- c) Air cooling requires more valves
- d) Air cooling wastes oil

31. What is the relationship between box-end and open-end wrenches?
- a) Both used for same purpose with different grip style
 - b) Both are used only for large bolts
 - c) One is metric, the other inch
 - d) Box-end is weaker
32. Which explains why a ratchet is the most common socket handle?
- a) It allows turning without removing tool repeatedly
 - b) It is the strongest
 - c) It is decorative
 - d) It replaces torque wrench
33. A mushroomed chisel top is unsafe because:
- a) It may break into fragments when struck
 - b) It cuts unevenly
 - c) It is sharper
 - d) It grips better
34. Why are pliers classified into different types?
- a) Each type is designed for specific jobs
 - b) They are for decoration
 - c) They differ only in color
 - d) To confuse users
35. Which type of hammer is safest for delicate parts?
- a) Sledge hammer
 - b) Plastic or rawhide hammer
 - c) Ball peen
 - d) Channel lock
36. How does valve arrangement affect engine performance?
- a) It changes how air/fuel mixture flows and ignites
 - b) It determines piston weight
 - c) It alters crankshaft length
 - d) It cools the engine
37. Which scenario shows the need for extension on a socket handle?
- a) Bolt hidden behind obstruction
 - b) Large bolts need more force
 - c) Nut stuck in rust
 - d) Bolt is small
38. Why must toolboxes be organized?
- a) Saves time and improves efficiency
 - b) Decorates workshop
 - c) Reduces torque
 - d) Prevents engine wear

V. Evaluating (6 Items)

39. Which engine type is BEST for small, lightweight vehicles?
- a) Four-stroke
 - b) Diesel
 - c) Two-stroke
 - d) External combustion
40. Which hand tool safety rule is MOST important?
- a) Using tools without handles
 - b) Wearing safety glasses during cutting
 - c) Hammering screwdrivers
 - d) Filing rapidly

... tool is most effective for removing tight screws?

- a) Impact driver
- b) Standard screwdriver
- c) Stubby screwdriver
- d) Torx screwdriver

42. Evaluate: Which wrench type is STRONGEST?

- a) 4-point
- b) 6-point
- c) 8-point
- d) 12-point

43. Which cooling method is MOST effective for truck engines?

- a) Air cooling
- b) Water cooling
- c) Oil cooling
- d) None

44. Which practice improves safety when using chisels?

- a) Grinding off mushroomed heads
- b) Striking sideways
- c) Using without safety goggles
- d) Hammering faster

VI. Creating (6 items)

45. If designing an eco-friendly small engine, which feature is best?

- a) Two-stroke using less fuel
- b) Four-stroke with higher efficiency
- c) Diesel with no spark plug
- d) External combustion only

46. Imagine you create a toolbox for beginners. Which feature should you include?

- a) Organized drawers by tool type
- b) Heavy, unmarked boxes
- c) No handles
- d) Random placement

47. If you design a safety campaign for mechanics, which slogan is best?

- a) "The right tool for the right job"
- b) "Hammer it harder"
- c) "Skip goggles for speed"
- d) "Force fits faster"

48. You invent a new wrench that combines line wrench and ratchet. What problem does it solve?

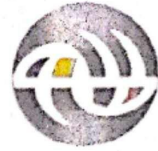
- a) Loosening tubing fittings with speed
- b) Hammering bolts
- c) Filing edges
- d) Cutting wires

49. Imagine redesigning hacksaw blades. What feature ensures safety?

- a) Teeth pointing away from handle and tightened
- b) Loose blade for flexibility
- c) Teeth pointing both ways
- d) Random tooth spacing

50. If creating a new engine design, which priority should guide you?

- a) Efficiency and reduced pollution
- b) Increased weight
- c) More complicated parts
- d) Ignoring cooling



Fill the table with the correct answer.(5pts each)

51. F. O. 1-3-4-2

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52. F. O. 1-3-4-2

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53. F.O. 1-2-4-3

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54. F.O. 1-2-4-3

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ESSAY: 10pts each

55. Discuss the operating principle of a 4 stroke cycle engine.

56. Discuss the operating principle of a 2 stroke cycle engine.

57. What is the relationship between crank shaft and cam shaft? Elaborate your answer.