Republic of the Philippines
SULTAN KUDARAT STATE UNIVERSITY
College of Industrial Technology
Isulan Campus, Isulan, Sultan Kudarat

AT 222 Midterm Exam

NAME:_____ **DATE:**_____

YEAR AND SECTION:_____

GENERAL DIRECTION: READ AND ANSWER CAREFULLY

Test 1: Multiple choice:

- Choose the best answer from the options provided (A, B, C, or D) for each question.

1. What is the primary difference between a 2-stroke and a 4-stroke engine?
   A) A 2-stroke engine completes a power cycle in two strokes, while a 4-stroke engine takes four strokes.
   B) A 2-stroke engine has four valves, while a 4-stroke engine has two.
   C) A 2-stroke engine requires separate oil lubrication, while a 4-stroke engine does not.
   D) A 2-stroke engine is only used in heavy motorcycles, while a 4-stroke engine is for scooters.
2. Which of the following components is unique to a 4-stroke engine but not found in a 2-stroke engine?
   A) Spark Plug
   B) Carburetor
   C) Camshaft
   D) Cylinder
3. Why do 2-stroke engines generally produce more power per cycle than 4-stroke engines?
   A) Because they complete a power cycle in half the time.
   B) Because they have larger pistons.
   C) Because they use a turbocharger.
   D) Because they have four spark plugs.
4. How does the lubrication system of a 4-stroke engine differ from that of a 2-stroke engine?
   A) A 4-stroke engine uses oil in a separate reservoir, while a 2-stroke engine mixes oil with fuel.
   B) A 2-stroke engine uses water cooling, while a 4-stroke engine does not.
   C) A 4-stroke engine does not need lubrication, while a 2-stroke engine does.
   D) A 2-stroke engine uses synthetic oil, while a 4-stroke engine does not.
5. A mechanic is diagnosing an engine with excessive smoke emissions. If it is a 2-stroke engine, what is the most likely cause?
   A) Faulty spark plug
   B) Too much oil mixed with fuel
   C) Clogged air filter
   D) Overheated radiator
6. If a rider wants a fuel-efficient motorcycle for daily commuting, which engine type should they choose and why?
   A) 2-stroke, because it has more power per cycle.
   B) 4-stroke, because it consumes fuel more efficiently.
   C) 2-stroke, because it requires less maintenance.
   D) 4-stroke, because it produces more emissions.
7. What is the main reason why 4-stroke engines last longer than 2-stroke engines?
   A) They have fewer moving parts.
   B) They operate at lower RPMs and have a dedicated lubrication system.
   C) They use a simpler combustion process.
   D) They require frequent oil changes.
8. A motorcycle with a 2-stroke engine is found to have poor fuel efficiency. Which of the following is a possible explanation?
   A) The engine completes a power stroke every two strokes, leading to more fuel consumption.
   B) The engine is using a high-performance air filter.
   C) The spark plug is too powerful.
   D) The carburetor is too small.
9. When comparing emissions, why is a 4-stroke engine considered more environmentally friendly than a 2-stroke engine?
   A) It produces less unburned fuel due to a controlled combustion process.
   B) It operates at higher RPMs.
   C) It uses leaded gasoline.
   D) It requires oil to be mixed with fuel.
10. A rider wants a lightweight motorcycle with high power output for off-road racing. Would a 2-stroke or 4-stroke engine be a better choice, and why?
    A) A 2-stroke engine because it is lighter and produces more power per stroke.
    B) A 4-stroke engine because it requires less maintenance.
    C) A 2-stroke engine because it is more fuel-efficient.
    D) A 4-stroke engine because it has higher torque.
11. If engineers wanted to design a hybrid motorcycle engine that balances power and fuel efficiency, what feature would be most beneficial?
    A) A 4-stroke combustion system with the lightweight structure of a 2-stroke engine.
    B) A 2-stroke fuel delivery system with a 4-stroke lubrication system.
    C) A 4-stroke engine that uses oil mixed with fuel for lubrication.

D) A 2-stroke engine that completes a full power cycle in four strokes.

12. What is the main function of the clutch system in a motorcycle?
    A) To increase engine speed
    B) To engage and disengage power from the engine to the transmission
    C) To provide additional braking force
    D) To control fuel consumption
13. Why is it necessary to pull the clutch lever before shifting gears on a manual motorcycle?
    A) To stop the engine from running
    B) To allow the engine and transmission to momentarily disengage, preventing gear damage
    C) To improve fuel efficiency
    D) To increase engine torque
14. A rider notices that their motorcycle is jerking when releasing the clutch. What is the most likely cause?
    A) Worn-out clutch plates
    B) Low engine oil
    C) Faulty spark plug
    D) Dirty air filter
15. If a motorcycle clutch is slipping, which of the following could be the reason?
    A) Over-tightened clutch cable
    B) Insufficient engine power
    C) Low tire pressure
    D) Loose chain drive
16. A mechanic is choosing between a wet clutch and a dry clutch for a high-performance motorcycle. Which factor should be most important in the decision?
    A) Wet clutches last longer due to better cooling and lubrication
    B) Dry clutches are quieter and require less maintenance
    C) Wet clutches do not require engine oil
    D) Dry clutches are better for off-road riding
17. If you were to design an improved motorcycle clutch system, which feature would you add to enhance performance?
    A) A self-adjusting clutch mechanism to reduce maintenance
    B) A single-gear system to remove the need for a clutch
    C) A heavier clutch lever to increase rider control
    D) A fully automatic clutch for all motorcycles
18. What is the main function of a motorcycle suspension system?
    A) To increase engine power
    B) To absorb shocks and maintain stability
    C) To improve fuel efficiency
    D) To reduce exhaust noise
19. Which type of suspension is commonly used in the rear of a motorcycle?
    A) Telescopic forks
    B) Swingarm with shock absorbers
    C) Torsion bar
    D) Coil springs only
20. Why do most motorcycles use telescopic forks in the front suspension?
    A) They improve fuel efficiency
    B) They provide controlled movement and shock absorption for a smoother ride
    C) They increase the motorcycle's weight for better traction
    D) They reduce engine vibrations
21. What happens when a motorcycle's suspension is too stiff?
    A) It absorbs bumps effectively for a smoother ride
    B) It makes cornering easier at low speeds
    C) It causes a rough and uncomfortable ride, transmitting more road shocks
    D) It reduces braking performance
22. A rider notices that the front of their motorcycle dives too much when braking. What should they check?
    A) Brake pads
    B) Fork oil level and spring preload
    C) Tire tread depth
    D) Throttle cable
23. A motorcycle's rear suspension bounces excessively after hitting a bump. What is the most likely issue?
    A) Worn-out shock absorbers
    B) Loose handlebar grips
    C) Overinflated tires
    D) Faulty spark plug
24. If a motorcycle leans too much when turning and feels unstable, which suspension setting should be adjusted?
    A) Engine timing
    B) Fork oil viscosity and rear shock preload
    C) Clutch cable tension
    D) Brake fluid level
25. How does adjusting the preload on a motorcycle's rear suspension affect handling?
    A) It changes the stiffness of the engine

B) It controls the ride height and weight distribution
C) It increases fuel efficiency
D) It reduces tire grip

26. A motorcycle designed for off-road riding typically has what type of suspension?
A) Low-travel and stiff suspension
B) Long-travel and soft suspension
C) No suspension for weight reduction
D) Single-sided swingarm only

27. A rider is deciding between a conventional telescopic fork and an inverted (USD) fork for a high-performance motorcycle. Which factor is most important in the decision?
A) USD forks offer better rigidity and handling at high speeds
B) Conventional forks are only used in scooters
C) USD forks require no maintenance
D) Conventional forks increase fuel consumption

28. If you were to design a smart motorcycle suspension system, which feature would be most beneficial?
A) A self-adjusting suspension that adapts to road conditions
B) A rigid suspension system that does not move
C) A lighter suspension that eliminates shock absorbers
D) A completely manual suspension with no adjustability

29. What are the two main types of motorcycle braking systems?
A) Drum brakes and disc brakes
B) Hydraulic brakes and mechanical brakes
C) Air brakes and electric brakes
D) Pedal brakes and hand brakes

30. Why do sport motorcycles typically use radial tires instead of bias-ply tires?
A) Radial tires provide better grip and stability at high speeds
B) Bias-ply tires are illegal for motorcycles
C) Radial tires have more air inside
D) Bias-ply tires wear out faster than radial tires

31. A rider frequently travels on wet and slippery roads. Which type of tire tread pattern would be most suitable?
A) Slick tires with no tread
B) Deep-grooved tires designed for wet conditions
C) Knobby tires for off-road use
D) Racing tires designed for dry asphalt

32. A rider complains that their motorcycle skids easily during hard braking. What could be the main cause?
A) Worn-out tires with low tread depth
B) Freshly inflated tires
C) A brand-new braking system
D) An engine problem

33. A rider is deciding between ABS (Anti-lock Braking System) and standard disc brakes. Which factor is most important in the decision?
A) ABS prevents wheels from locking up, improving safety in emergency braking
B) Standard disc brakes are illegal in most countries
C) ABS increases engine power
D) Standard disc brakes work better on all surfaces

34. If you were to design a new motorcycle braking system, what feature would you include for enhanced safety?
A) A combined braking system (CBS) that distributes braking force to both wheels
B) A single rear brake without a front brake
C) A braking system that only works at high speeds
D) A fully electronic brake that requires no rider input

35. What are the two main types of motorcycle cooling systems?
A) Air cooling and liquid cooling
B) Electric cooling and oil cooling
C) Mechanical cooling and chemical cooling
D) Wind cooling and solar cooling

36. Why do high-performance motorcycles often use liquid cooling instead of air cooling?
A) Liquid cooling provides better heat dissipation and temperature control
B) Liquid cooling makes the motorcycle lighter
C) Air cooling increases fuel consumption
D) Liquid cooling reduces engine power

37. A rider notices that their liquid-cooled motorcycle is overheating. What should they check first?
A) The engine oil level
B) The coolant level and radiator for leaks
C) The air filter
D) The brake fluid

38. If a motorcycle's cooling fins are clogged with dirt and debris, what problem might occur?
A) The engine may overheat due to reduced airflow
B) The engine will run at a lower temperature
C) The fuel consumption will decrease

D) The exhaust system will fail

39. A rider is choosing between an air-cooled engine and a liquid-cooled engine for long-distance touring. Which factor is most important in the decision?
    A) Liquid-cooled engines provide better cooling and maintain performance during long rides
    B) Air-cooled engines have more power than liquid-cooled engines
    C) Liquid-cooled engines are only used in off-road motorcycles
    D) Air-cooled engines require no maintenance
40. If you were to design a more efficient cooling system for motorcycles, what feature would you include?
    A) A smart cooling system that adjusts based on engine temperature and riding conditions
    B) A cooling system that works only at high speeds
    C) A fan that runs continuously, even when the engine is off
    D) A cooling system that does not require coolant or air circulation
41. What is the primary function of the stator in a motorcycle's electrical system?
    A) To start the engine
    B) To generate electricity for charging the battery and running electrical components
    C) To store electrical power
    D) To control fuel injection timing
42. Why is a rectifier-regulator important in a motorcycle's electrical system?
    A) It provides extra power to the engine
    B) It converts AC from the alternator to DC and regulates voltage
    C) It stores excess electricity for later use
    D) It increases battery size
43. How does a capacitor discharge ignition (CDI) system improve engine performance?
    A) It produces a strong, quick spark for efficient combustion
    B) It increases fuel consumption
    C) It eliminates the need for a battery
    D) It makes the motorcycle run without fuel
44. A rider notices that the headlight flickers when revving the engine. What could be the possible cause?
    A) A weak battery
    B) A faulty rectifier-regulator
    C) A clogged fuel injector
    D) A worn-out clutch cable
45. The motorcycle's horn and lights stop working, but the engine still runs. What should the rider check first?
    A) The spark plug
    B) The fuel level
    C) The fuse box and wiring connections
    D) The chain tension
46. If a motorcycle's battery keeps draining quickly, what could be the possible causes?
    A) A short circuit or faulty charging system
    B) A clogged air filter
    C) Worn-out brake pads
    D) A loose throttle cable
47. What will happen if the stator fails to generate electricity?
    A) The engine will run normally without any issues
    B) The battery will not charge, and electrical components will stop working
    C) The fuel system will shut down immediately
    D) The exhaust system will overheat
48. A rider upgrades their motorcycle to LED headlights but experiences electrical flickering. What could be the reason?
    A) The LED bulbs are too powerful
    B) The motorcycle's alternator does not supply stable voltage
    C) The battery size is too large
    D) The fuel mixture is too rich
49. A rider is choosing between a kick-start and an electric-start system for an off-road motorcycle. Which factor is most important in the decision?
    A) Electric-start systems are more convenient, but kick-start systems are more reliable in harsh conditions
    B) Kick-start systems are illegal in off-road motorcycles
    C) Electric-start systems reduce engine power
    D) Kick-start systems require no maintenance
50. If you were to design a smart motorcycle electrical system, what feature would you include?
    A) A self-charging battery that optimizes power distribution based on riding conditions
    B) A heavy-duty battery with no charging system
    C) A fully manual electrical system with no wiring
    D) A single-use battery that must be replaced after every ride

END ☺☺☹

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