B S ABDUR RAHMAN UNIVERSITY
DEPARTMENT OF AUTOMOBILE ENGINEERING
PhD Entrance Examination January - 2016
Objective Test

Write the correct answers in the table

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51		52		53		54		55	
56		57		58		59		60	
61		62		63		64		65	
66		67		68		69		70	
71		72		73		74		75	
76		77		78		79		80	
81		82		83		84		85	
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1. During compression stroke the air is compressed according to
   (a) Isothermal process
   (b) Hyperbolic process
   (c) Adiabatic process
   (d) Constant pressure process
2. The crankcase scavenging the crankcase or underside of the piston acts as
   (a) An air compressor
   (b) A blower
   (c) A ventilator
   (d) A breather
3. The temperature of the piston will be more at
   (a) The piston walls
   (b) The crown of the piston
   (c) The skirt of the piston
   (d) The piston pin
4. One of the major causes of friction in an engine is
   (a) High speed
   (b) High volumetric efficiency
   (c) Piston-ring friction
   (d) Oil viscosity
5. The characteristic of an object which makes it resist any tendency to change its direction of motion is called
   (a) Inertia
   (b) Power
   (c) Internal energy
   (d) Velocity
6. As the number of cylinders in multi cylinder engines increases the power to weight ratio
   (a) Remains the same
   (b) Increases
   (c) Becomes zero
   (d) Decreases
7. The fit of the piston to the cylinder is measured at the
   (a) Piston skirt
   (b) Piston head
   (c) Point of minimum diameter
   (d) Piston crown
8. In a six cylinder engine there is balance of
   (a) Primary forces only
   (b) Secondary forces only
   (c) Both primary and secondary forces
   (d) None of the above
9. If the connecting rod is longer, the side thrust of the piston is
   (a) Increased
   (b) Constant
   (c) Decreased
   (d) Both a&b
10. In general the design of the current regulator is such that its main actuating winding carries full
   (a) Generator voltage
   (b) Generator output
   (c) Field current

(d) Battery voltage

11. The temperature of the compressed air should be ..... of the fuel
    (a) Below the flash point
    (b) Above the flash point
    (c) Above the fire point
    (d) Between the fire and flash point
12. The compression pressure in diesel engine is around
    (a) 30 Kg/cm^2
    (b) 10 Kg/cm^2
    (c) 20 Kg/cm^2
    (d) 40 Kg/cm^2
13. The combustion process in a diesel engine is
    (a) Constant pressure process
    (b) Isothermal process
    (c) Constant volume process
    (d) Adiabatic process
14. Which type of valve arrangements require the use of rocket arms?
    (a) H - head
    (b) T - head
    (c) I - head
    (d) L – head
15. As compression ratio in an engine goes up, the octane requirements of the fuel
    (a) Goes down
    (b) Goes up
    (c) Stay about the same
    (d) Does not affect
16. The metering rod is designed to vary the size of which jets
    (a) High speed jets
    (b) Accelerating jets
    (c) Float level jets
    (d) Idle jets
17. The brake shoes are curved to conform to the inner diameter of the
    (a) Tyre
    (b) Wheel
    (c) Pedal
    (d) Brake drum
18. The number of parallel paths in a lap winding of the armature of a DC generator is equal to
    (a) Half the number of poles
    (b) Number of poles
    (c) Two
    (d) Four
19. The central part of the axle beam is offset downwards to
    (a) Give improved resistance to end thrusts during cornering
    (b) Give better bending strength
    (c) Give improved torsional strength during brake application
    (d) Clear the engine sump and lower vehicle centre of gravity
20. X - member of a car frame ensures improved
    (a) Resistance to side force due to transverse wind load
    (b) Bending strength of side members
    (c) Resistance to vertical shock loads acting simultaneously on both front wheels
    (d) Resistance of weaving and torsional strength of front end of frame

21. On rebound, in the direct acting shock absorber, fluid flows out of the upper part of the cylinder and also
    (a) Out of the dust shield
    (b) Out of the reservoir

(c) Into the reservoir
(d) Into the dust shield

22. The weight or pressure required to deflect a spring in mm is called the spring
    (a) Weight
    (b) Deflection
    (c) Rate
    (d) Rebound
23. Leaf spring for vehicles are nipped to
    (a) To vary the effective length of the spring
    (b) To increase the interleaf friction
    (c) Improve the load carrying capacity of spring
    (d) Ensure that all leaves are uniformly stressed during loading
24. During suction stroke the pressure inside the cylinder is
    (a) Equal to atmospheric pressure
    (b) Above atmospheric pressure
    (c) Above or below atmospheric pressure
    (d) Below atmospheric pressure
25. The heat is added in the otto cycle at
    (a) Constant pressure
    (b) Constant volume
    (c) Approximately constant pressure and constant volume
    (d) None of the above
26. The heat is rejection in the diesel cycle at
    (a) Constant pressure
    (b) Constant volume
    (c) Approximately constant pressure and constant volume
    ~~(d)~~ None of the above
27. The two-stroke engine has inlet ports in
    (a) Pistons
    (b) Cylinder walls
    (c) Piston rings
    (d) Cylinder head
28. Connecting rods are generally of the following from
    (a) Forged round section steel
    (b) Cast steel rectangular section
    (c) Forged square section steel
    (d) Forged I section steel
29. For diesel engines the nominal compression ratio is from
    (a) 17 to 21:1
    (b) 7.5 to 10:1
    (c) 30 to 40:1
    (d) 1 to 5:1
30. Engine torque is highest at
    (a) Low speed
    (b) Intermediate speed
    (c) High speed
    (d) None of the above
    (e)
31. The maximum pressure of air fuel mixture at the end of compression in petrol engines varies from
    (a) 10-20 Kg/cm^2
    (b) 30-100 Kg/cm^2
    (c) 6-10 Kg/cm^2
    (d) 100-1000 Kg/cm^2
32. The type of friction generally present in an automotive engine is
    (a) Viscous friction
    (b) Greasy friction

(c) Dry friction

33. Vibration damper .....
    (a) controls the torsional vibrations
    (b) drives the pulley
    (c) dampens the engine speed
    (d) reduces the speed of the flywheel
34. Immediately after ignition, combustion chamber temperatures may reach a value of
    (a) 15000C
    (b) 55000C
    (c) 25000C
    (d) 75000C
35. The compression ratio in a diesel engine is as high as
    (a) 25:1
    (b) 20:1
    (c) 10:1
    (d) 5:1
36. The purpose of the fluid coupling is to act as a
    (a) Synchronizing device
    (b) Automatic gear changer
    (c) Flexible power-transmitting coupling
37. The distance between adjacent meshing teeth of mating gears is called
    (a) Clearance
    (b) Back lash
    (c) Flank
38. In the fluid coupling, speed reduction means torque reduction. But in the torque converter, speed reduction means
    (a) Torque increase
    (b) Torque loss
    (c) Power increase
39. The fluid coupling consists essentially of two
    (a) Doughnuts
    (b) Vane members
    (c) Guide rings
    (d) Driving shafts
40. The number of planetary gear sets in a hydromatic transmission system is
    (a) Two
    (b) Three or more
    (c) None
    (d) one
41. When coming out of overdrive, the overdrive electric control momentarily
    (a) De clutches the engine
    (b) Interrupts the ignition system action
    (c) De meshes the sun gear
42. In order for power to flow through the fluid coupling from the engine to car wheels, the driving member must be turning
    (a) Slower than driven member
    (b) At same speed as driven member
    (c) Faster than driven member
43. In the overdrive, there is an arrangement whereby it is possible to lock stationary the
    (a) Ring gear
    (b) Sun gear
    (c) Planet pinion cage
44. The coil spring clutch may use from
    (a) Two to six springs
    (b) Three to nine springs
    (c) Four to eight springs

(d) Ten to twelve springs

45. If the differential noise is present only when the car is rounding a curve the trouble would be due to
    (a) Heavy heel contact on gear teeth
    (b) Heavy toe contact on gear teeth
    (c) Binding in differential case
46. To correct heavy flank contact on the ring gear teeth
    (a) Move the drive pinion in
    (b) Move the drive pinion out
    (c) Move the ring gear out
    (d) Adjust back lash as necessary
47. The ring gear is adjusted in the differential by use of
    (a) Selective washers of proper thickness
    (b) Bearing adjuster
    (c) Adjusting screws
48. The axle bevel gears in the differential mesh with the
    (a) Differential pinion gears
    (b) Ring gear
    (c) Drive pinion
    (d) Main gear
49. The ring gear is mounted on the
    (a) Differential housing
    (b) Differential carrier
    (c) Differential case
    (d) Axle housing
50. The outer end of the axle is supported by a
    (a) Spring seat
    (b) Sleeve bearing
    (c) Housing bracket
    (d) Ball or roller bearing
51. When the axle is pulled the bearing
    (a) Stays in the housing
    (b) Stays in the differential
    (c) Comes out with it
52. The slip joint permits a change in the
    (a) Length of shaft
    (b) Speed of rotation
    (c) Angle of drive
53. The centre part of a typical universal joint is called the
    (a) Trunnion
    (b) Joint
    (c) Bearing
    (d) Spider
54. To take care of the difference in the driving angle as rear axle moves up and down, the propeller shaft has one or more
    (a) Slip joint
    (b) Elbow joint
    (c) Universal joints
55. In the modern differential, the type of gearing used for the drive pinion and ring gear is
    (a) Spur
    (b) Spiral bevel
    (c) Hypoid
56. There is a tendency for the rear axle housing to rotate in a direction opposite to the direction of the rear wheels and this effect is due to
    (a) The torque tube
    (b) Acceleration

(c) Rear end torque

57. In the slip joint, slippage occurs between internally and externally mated
    (a) Couplings
    (b) joints
    (c) Splines
58. The drive gear in the differential is adjusted by use of
    (a) Selective washers of proper thickness
    (b) Adjustment nuts
    (c) Adjustment screws
59. The type of rear axle in which the wheel end is supported by bearings inside the axle housing is
    (a) Semi floating axle
    (b) Three-quarter floating axle
    (c) Full-floating axle
60. The brake pipe in hydraulic brakes is made up of
    (a) PVC
    (b) Steel
    (c) Rubber
    (d) Copper
61. The ease with which a liquid vapourises is called its
    (a) Volatility
    (b) Octane rating
    (c) Vapourability
62. As the battery is discharged, the active materials in both negative and positive plates are changed to
    (a) Spongy lead
    (b) Sulphuric acid
    (c) Lead oxide
    (d) Lead sulphate
63. The pipes used in diesel engines from pump to nozzle is made up of
    (a) PVC
    (b) Rubber
    (c) Steel
    (d) Copper
64. Two types of antifreeze are
    (a) Iso-octane and ethylene glycol
    (b) Alcohol base and ethylene glycol
    (c) Ethylene glycol and propylene glycol
65. The substance added to the oil which helps to keep the engine clean is called
    (a) Grease
    (b) Thickening agent
    (c) Soap
    (d) Detergent
66. One advantage of using an exhaust valve as insert is that the ring
    (a) Withstands high exhaust gas temperature better
    (b) Is more easily machined
    (c) Wears in more quickly

67. The crankshafts are usually forged to get
    (a) Minimum friction effects
    (b) A good mechanical design
    (c) Good grain structure
    (d) Improved corrosion structure
68. The unsprung mass in a vehicle system is mainly composed of
    (a) The frame assembly
    (b) Gear box and propeller shaft
    (c) Axle and the parts attached to it

(d) Engine and associated parts

69. Parts of the shock absorber include
    (a) Valves
    (b) Coupler
    (c) Valve springs
    (d) Pistons
70. The automobile chassis consists of the engine, frame, power train, wheels, steering and .....
    (a) The doors
    (b) Luggage boot
    (c) Wind shield
    (d) Braking system
71. The frame provides support for the engine body, power train members and .....
    (a) Wheels
    (b) Jack
    (c) Road
72. The engine is usually supported by the frame
    (a) Four or five
    (b) One or two
    (c) Three or four
    (d) One or two
73. The purpose of the shock absorbers is to
    (a) Strengthen frame
    (b) Damp spring oscillations
    (c) Improve rigidity of spring mountings
74. The rear end suspension arrangement in which rear end torque is absorbed by the spring is called the
    (a) Torque tube drive
    (b) Hooks drive
    (c) Differential drive
    (d) Hotchkiss drive
75. The device that permits variation in the distance between the spring eyes of a leaf spring as the spring flexes is called
    (a) Spring shackle
    (b) Spring U - bolt
    (c) Spring hanger
    (d) Spring leaf
76. When the direct acting shock absorber is compressed or telescoped fluid passes through the piston orifices into the upper part of the cylinder and also
    (a) Into the dust shield
    (b) Out of the dust shield
    (c) Into the reservoir
    (d) Out of the reservoir
77. The clips placed at intervals along some leaf spring to prevent spring leaf separation on rebound, are called
    (a) Rebound clips
    (b) Separation clips
    (c) Interval clips
78. In a vehicle with torque tube drive, the rear suspension spring
    (a) Takes up driving thrust and torque reaction
    (b) Supports load and takes up end thrust
    (c) Takes up braking thrust and torque reaction
    (d) Takes up end thrust and torque reaction
79. With a leaf spring type of suspension, interference between steering and suspension system can be reduced to minimum when
    (a) Front end of the spring is pin joined and the rear end is shackled
    (b) Front end of the spring is shackled and rear end is pin jointed

(c) Both end of the spring are shackled
(d) Both ends of the springs are pin jointed

80. The laminated spring, which is in common use, is of the type
(a) Full elliptic
(b) Semi elliptic
(c) One quarter elliptic
(d) Three quarter elliptic

81. In the distributorless ignition system, a four-cylinder engine with the firing order 1,3,4,2 has the _____ cylinders paired

82. A transistor is regulated by the current at_____ terminal

83. Adjustment of the ignition timing can be done by_____

84. The parts of the primary circuit in the ignition coil are____

85. The output of the alternator is controlled by_____

86. According to the 20 hour rate, abattery that can deliver 5 A for 20 hours with the cell voltage remaining above 1.75 V would be rated at_____

87. The amount of voltage that can be obtained from a single cell of a storage battery is_____

88. The calorific value of petrol is about___

89. The valve mostly used in an automobile engine is a____

90. The tilting of the front wheels away from the vertical is called_____

91. If vehicle ride will be smooth and comfortable if _____(Related to mass)

92. Semi-elliptical springs are attached to the vehicle frame by_____

93. In vacuum booster servo assisted hydraulic brakes, vacuum is developed_____

94. If the brake efficiency is 70Yo, then the braking quality is said to be____

95. In the differential, the crown wheel is attached to the_____

96. The compression pressure in diesel engine is around_____

97. The combustion process in a diesel engine is_____

98. On rebound, in the direct acting shock absorber, fluid flows out of the upper part of the cylinder and also _____

99. The brake shoes are curved to conform to the inner diameter of the_____

100. The central part of the axle beam is offset downwards to_____