

## STEP WISE MARKING SCHEME

CLASS 11<sup>TH</sup>

AUTOMOTIVE

Q.NO	ANSWERS	MARKS
1	<ul style="list-style-type: none"> <li>• The brakes should stop the vehicle in shortest possible distance and without skidding the vehicle.</li> <li>• The brakes should work equally well on fair or bad roads.</li> <li>• Pedal effort applied by the driver should not be more, so as, not to strain the driver.</li> <li>• Brakes should work equally well in all weathers.</li> <li>• It should have very few wearing parts.</li> <li>• It should require little maintenance.</li> <li>• Brakes, when applied should not disturb the steering geometry.</li> <li>• There should be minimum sound when brakes are applied</li> </ul> <p style="text-align: center;">OR</p> <p><b>Mechanical brakes-</b>: Brakes which operates mechanically by using cam, rod and linkage with drum brake.</p> <p><b>Hydraulic brakes</b>: Brakes which are operated by the pressure on hydraulic fluid are called hydraulic brakes. This braking system consists of master cylinder, fluid line, wheel cylinder and drum brake.</p> <p><b>Vacuum servo brakes</b>: Application of brake is assisted by engine vacuum for suction and is called vacuum servo brake. This system consists of vacuum reservoir, master cylinder, vehicle control unit and server with diaphragm.</p>	5
2	<p><b>Direct measuring instruments</b></p> <p>The measuring instruments, which do not require the help of other instruments for measuring are called direct measuring instruments. Usually these instruments have a line, which is divided in equal parts, called graduated scale. commonly used direct measuring</p> <p><b>Indirect measuring instruments</b></p> <p>There are situations where direct measuring instruments cannot be used. The simple calipers can be used in these situations. For measuring, the object is held between the ends, object removed and the ends are placed on steel scale to determine the distance. These calipers can be used to measure the length, outside and inside diameters.</p> <p style="text-align: center;">OR</p> <p>Instruments used for measuring the angle are called angular measuring instruments.</p>	5

	<p>Angle is formed by two intersecting lines at the point of intersection. The instruments used for measurement of the angle are:</p> <p><b>Protractor:</b> A protractor is a device for measuring the angle between two intersecting lines. The angle is measured in degrees, and a circle is defined as having 360 degrees of identical size.</p> <p>Blade protractor: This is a highly useful and accurate tool for setting bevels, transferring angles, small squaring tasks, and many other applications. Double graduations from 0 - 180° in opposite directions permitting the direct reading of angles and supplementary angles. The blade protractor</p> <p>Bevel / Combination gauge: A bevel gauge is an adjustable gauge for setting and transferring angles. The handle is usually made of wood or plastic or steel and is connected to a metal blade with a thumb screw or wing nut. The blade pivots and can be locked at any angle by loosening or tightening the thumb screw. The bevel gauge and its applications</p>	
3	<p>Automotive bolts often known as threaded fasteners is one of the types of auto fasteners that comprises of either a threaded pin or rod having a head at one end. The bolts are inserted through holes in assembled parts and fastened by a mated nut with a help of torque. Therefore a bolt is an externally threaded headed fastener, which is used in conjunction with a nut.</p> <p>Type of bolt –</p> <p><b>Socket screws</b> A Hex Socket Head Screw with an enlarged, unthreaded, cylindrical shoulder under the head. For rotation or sliding applications such as pulley shafts in punch and die works or for use as a bearing pin. Allen head wrench is used for tightening the screw.</p> <p><b>Square head bolt</b> Square headed bolts are the same basic size and shape as the Hex Cap screw except the head is square instead of hexagonal. They have the Roll thread and also come in the Lag screw thread as well. U-Bolt A <b>U-Bolt</b> is a U shaped bolt with two threaded arms protruding from a curved base. U-bolts are used as framing fasteners and anchors for foundations and roofs, pipe and conduit holders and bolts for motor and engine shaft components.</p> <p><b>Knurled bolts</b> This is a special bolt that is used in Electrical Switchboards and or Panel Boards.</p> <p style="text-align: center;">OR</p> <p>A nut is a type of fastener with a threaded hole. Nuts are almost always used opposite a mating bolt to fasten a stack of parts together. The two partners are kept together by a combination of their threads' friction, a slight stretch of the bolt, and compression of the parts. In applications</p>	5

	<p>where vibration or rotation may work a nut loose</p> <p>Type of Nuts-</p> <p><b>Hex</b> A hexagonal nut is a type of metal fastener that has six sides. Most nuts are cut in a hexagonal shape, since it seems to be the easiest shape to grasp. Nuts, in any form, are almost exclusively used to fasten a bolt to another object.</p> <p><b>Heavy hex</b> Heavy hex nuts are slightly larger and thicker than standard (finished) hex nuts. Because of their secure hold and durability they are usually used for large diameter and high strength bolt applications.</p> <p><b>Nylon insert lock</b> A torque prevailing nut that uses nylon patented insert to provide a locking feature.</p> <p><b>The nylon insert</b>, it is claimed, helps to seal the bolt thread against seepage of water, oil, petrol, paraffin and other liquids.</p> <p><b>Jam</b> The term is sometimes used for thin (or jam) nuts used to lock a thicker nut. When used in this way the thin nut should be adjacent to the joint surface and tightened against the thick nut. If placed on top of the thick nut the thin nut would sustain loads it was not designed to sustain.</p>	
4	<p>Steps to remove the puncture from a tyre wheel;</p> <ul style="list-style-type: none"> <li>• Loosen the wheel nuts</li> <li>• Raise the portion of punctured wheel by placing the jack at lift point strictly</li> <li>• Remove the punctured wheel from hub</li> <li>• Keep the removed nuts safely with washer</li> <li>• By using tube valve, release the remaining air from the tube</li> <li>• Place the blunt lever to remove the tyre bed from the wheel or place the wheel on the tyre removing machine.</li> </ul>	3
5	<p>How do you think he spotted the opportunity</p> <ul style="list-style-type: none"> <li>• How did he serve the needs of the customer</li> <li>• What would you have done</li> </ul> <p style="text-align: center;">OR</p> <p>inspect belt for cracks, cut deformation, wear and cleanliness. If necessary, change the belt</p> <p>Check belt tension as 6—7 mm as deflection</p> <p>To adjust the belt to tight or loose, change the position of the alternator Tighten belt adjusting bolt and alternator pivot bolt</p>	3
6	<p><b>Gas Welding</b></p> <p><b>Arc Welding</b></p> <p><b>Tig Welding</b></p> <p><b>Mig Welding</b></p>	3
7	<ul style="list-style-type: none"> <li>• Keep the vehicle on hard surface</li> <li>• Open the engine bonnet/cover and support it properly</li> <li>• Inspect for external leakage of oil, coolant, gases - locate the area</li> </ul>	3
8	<ul style="list-style-type: none"> <li>• Initial Process Start the process by placing your vehicle's gears in the neutral mode, then hold the emergency brake and jack up your vehicle's front wheels. To the jack stand, place it both the side of the front frame. ...</li> </ul>	3

	<ul style="list-style-type: none"> <li>• Step 2: Turning off the Wheel ...</li> <li>• Step 3: Installation ...</li> </ul>	
9	<ul style="list-style-type: none"> <li>• The tubeless tyres are lighter and run cooler than tubed tyre.</li> <li>• The main advantage of a tubeless tyre is that it retains air for a long period even after being punctured by nail, provided the nail remains in the tyre. But the tube tyre releases the air almost immediately after being punctured.</li> <li>• Any hole in the tubeless tyre can be repaired simply by rubber plugging.</li> </ul> <p style="text-align: center;">OR</p> <p>To write a letter or make a report, we can use a word processor on a computer instead of using pen and paper. A word processor is a software application that helps us to create documents by typing in text, making corrections (editing text), arranging it in a neat manner (formatting) and printing it</p>	3
10	<ol style="list-style-type: none"> <li>1. Draw any two chords AB and CD.</li> <li>2. Draw lines perpendicular to the two chords or bisect the two chords and extend the lines.</li> <li>3. The intersection of these two perpendiculars is the centre (M) of the circle.</li> </ol>	2
11	<ol style="list-style-type: none"> <li>1. Draw a line AB of given length.</li> <li>2. Draw arcs using A as the centre with the compass set more than half the length of AB.</li> <li>3. Draw arcs using B as the centre with the compass set as above.</li> <li>4. Connect the intersection (C and D) by a line.</li> <li>5. The connecting line bisects AB in point M.</li> </ol>	2
12	<p><b>Casting:</b> Casting is one of the most ancient processes of manufacturing metallic components. Also with few exceptions it is the first step of manufacturing metallic components.</p> <p style="text-align: center;">OR</p> <ul style="list-style-type: none"> <li>• Inspect the battery terminal for loose contact</li> <li>• Inspect the socket connection for slackness</li> <li>• Check the connection to ignition switch</li> <li>• Inspect connection at primary circuit of LT lead</li> </ul>	2
13	For easy shifting of gears, it is necessary to regularly lubricate the gear linkages. Slackness must be inspected and adjusted at regular intervals otherwise, it may cause hard gear shifting and gear slips out of mesh. To avoid this problem, it is necessary to inspect the alignment	2
14	The benefits of networking are found in every industry and organization. Networking <b>achieves the objectives of building business relationships to further career goals or find new opportunities.</b>	2
15	Let us start by understanding who is a stakeholder. Any person with an interest or concern in something (business, policy, activity) is known as a stakeholder. Since a green economy affects everyone and needs support from many people there are many stakeholders in a green economy. Since the environment affects you and your actions affect the	2

	environment,  Radiator Hose pipe Water pump	OR	
<b>16</b>	A-4		<b>1</b>
<b>17</b>	B-7		<b>1</b>
<b>18</b>	A-COPPER		<b>1</b>
<b>19</b>	A-SEEL ULE		<b>1</b>
<b>20</b>	A-GRE		<b>1</b>
<b>21</b>	8-10MM		<b>1</b>
<b>22</b>	DIFFRENTIAL		<b>1</b>
<b>23</b>	3000 TO 3500		<b>1</b>
<b>24</b>	10000-15000		<b>1</b>
<b>25</b>	RADITIOR		<b>1</b>
<b>26</b>	TO COVAY MESSAGE		<b>1</b>
<b>27</b>	CNTR+C		<b>1</b>
<b>28</b>	FALSE		<b>1</b>
<b>29</b>	FALSE		<b>1</b>
<b>30</b>	C-CONFIDANCE		<b>1</b>