

**PAPER – II**

**DRAUGHTSMAN CIVIL / DRAUGHTSMAN MECHANICAL / FITTER / MACHINIST  
/ MACHINIST GRINDER / MECHANIC AGRICULTURE MACHINERY / MECHANIC  
MACHINE TOOL MAINTENANCE / MECHANIC MOTOR VEHICLE / MECHANIC  
REFRIGERATION AND AIR-CONDITIONING / OPERATOR ADVANCE MACHINE  
TOOL / TOOL & DIE MAKER (DIES & MOULDS) / TOOL & DIE MAKER (PRESS  
TOOLS, JIGS & FIXTURES) TURNER / REFRACTORY TECHNICIAN**

**(WORKSHOP CALCULATION & SCIENCE)**

**SEMESTER – IV**

**TIME: 3 Hrs.**

**MARKS : 75**

**Note: Attempt all the question.**

**All questions carry equal marks.**

**Choose the correct answer:**

1. For a sample to be truly representative of the population, it must truly be \_\_\_\_\_.  
a) Fixed                      b) Random                      c) Specific                      d) Casual
2. If the sample is truly representative of the population, then the characteristics of the sample can be considered to be the same as those of the \_\_\_\_\_ population.  
a) Fixed                      b) Selected                      c) Random                      d) Entire
3. The purpose of heat treatment is -  
a) To change the mechanical properties of steel  
b) To change the internal structure of steel  
c) To change the appearance of the component  
d) To change the chemical properties of steel
4. Where permanent magnet is used?  
a) Relays                      b) Ignition coil  
c) Solenoids                      d) Moving coil instruments
5. Which one of the following statement is NOT correct in respect of 'V' belt drive -  
a) It is compact  
b) It can be easily replaced and maintenance is easy  
c) It causes less noise and vibration  
d) It is used where distance between driver & driven pulleys is more

**Contd...2/-**

6. In acceptance sampling, when there is a finite probability that the lot may be accepted even if the quality is not really good, is called -  
a) Consumer's risk  
b) Producer's risk  
c) Operator's risk  
d) Owner's risk
7. Co-efficient of friction can be found by -  
a)  $\frac{\text{Normal reaction}}{\text{Frictional force}}$   
b)  $\frac{\text{Frictional reaction}}{\text{Normal force}}$   
c)  $\frac{\text{Normal Force}}{\text{Frictional reaction}}$   
d)  $\frac{\text{Frictional Force}}{\text{Normal reaction}}$
8. Which is NOT the property of temporary magnet?  
a) Strength can be varied  
b) Polarity can be changed  
c) Magnetization can be controlled  
d) N & S poles are always permanent
9. The objective of earthing or grounding is -  
a) To provide as low resistance possible to the ground  
b) To provide as high resistance possible to the ground  
c) To provide flow of positive, negative and zero sequence current  
d) None of these
10. Which of the following is not a sampling plan?  
a) Single sampling plan  
b) Double sampling plan  
c) Triple sampling plan  
d) Sequential sampling plan
11. What is the main purpose of annealing?  
a) To improve machinability  
b) To improve magnetism  
c) To increase hardness  
d) To increase toughness
12. In which one material insulators are made -  
a) Porcelain  
b) Rubber  
c) Hard rubber  
d) Fiber
13. A vehicle has 1000 kg mass and co-efficient of friction between tyres and road is 0.4 what is the maximum braking force (retarding force) which can stop the vehicle on road -  
a) 3924 N  
b) 9180 N  
c) 1000N  
d) 400 N
14. From which material, magnets are made -  
a) High carbon steel  
b) Alnico alloy steel  
c) Low carbon steel  
d) High speed steel

Contd...3/-

031/217, 032/224, 036/227, 042/222, 043/223,  
047/216, 052/225, 055/215, 056/218, 058/226,  
065/228, 066/229, 067/221, 274

15. If the centre to centre distance between meshing gears is 150 mm and the velocity ratio is 2 : 1 what will be the pitch diameter of the pinion and gear -  
a) 50 mm and 100 mm                      b) 100 mm and 200 mm  
c) 150 mm and 300 mm                      d) 200 mm and 400 mm
16. If the class mid points in a frequency distribution of age of a group of persons are 25, 32, 39, 46, 53 and 60. The size of class interval is -  
a) 5                      b) 7                      c) 8                      d) 6
17. The number of observations in a particular class is called -  
a) Width of the class                      b) Class mark  
c) Frequency                      d) None of these
18. Which one is the application of temporary electro magnet select from the following?  
a) Micro phones                      b) Moving coil instruments  
c) Cut outs                      d) Ear phones
19. Convert the following into an ordinary frequency distribution 5 students get less than 3 marks; 12 students get less than 6 marks; 25 students get less than 9 marks; 33 students get less than 12 marks.  
a) 0—3    3—6    6—9    9—12  
          5        7        13        8  
b) 0—3    3—6    6—9    9—12  
          6        6        14        7  
c) 0—3    3—6    6—9    9—12  
          4        8        12        9  
d) 0—3    3—6    6—9    9—12  
          6        8        12        7
20. Which material are mostly used for making electro magnet?  
a) Silicon steel                      b) Tungsten steel  
c) Alnico alloy steel                      d) Cast iron
21. In double sampling plan, if the numbers of defects is in between the two cut off numbers  $C_1$  and  $C_2$  then -  
a) Accept the lot                      b) Reject the lot  
c) Take another sample                      d) None of these

Contd...4/-



031/217, 032/224, 036/227, 042/222, 043/223,  
047/216, 052/225, 055/215, 056/218, 058/226,  
065/228, 066/229, 067/221, 274

22. Heat treatment of metals is necessary -  
a) To produce certain desired properties  
b) To make good appearance on the component  
c) To increase strength of the metal  
d) To make the metal rust-proof
23. A machine shaft is running 250 rpm and machine spindle is to be driven directly from the main shaft to turn at 125 rpm. If the diameter of pulley fitted on the machine spindle is 20 cm what would be the diameter of pulley fitted on the main spindle -  
a) 10 cm                      b) 20 cm                      c) 50 cm                      d) 100 cm
24. Which one of the following is useful friction?  
a) Wheel hub bearings                      b) Crankshaft bearings  
c) Ring in cylinders                      d) Brake shoe linings
25. When these two magnets are kept close as shown, there will be?



- a) Rotation                      b) No change                      c) Repulsion                      d) Attraction

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