

PAPER - II
**DRAUGHTSMAN (CIVIL)/ DRAUGHTSMAN (MECHANIC)/ FITTER/
 MACHINIST/ MACHINIST GRINDER/ MECH. AGRICULTURE MACHINERY/ MECH.
 MACHINE TOOL MAINTENANCE/ MECH. MOTOR VEHICLE/ MECHANIC
 (REFRIGERATION & AIR- CONDITIONER) / OPERATOR ADVANCE MACHINE TOOL/
 TOOL & DIE MAKER (DIES & MOULDS)/ TOOL & DIE MAKER (PRESS, TOOLS, JIGS &
 FIXTURE)/ TURNER/ REFRACTORY TECHNICIAN
 (WORKSHOP CALCULATION AND SCIENCE)**
SEMESTER - IV

TIME: 3 HRS.

MARKS: 75

Note: Attempt all questions.**All questions carry equal marks.****This paper carries negative marking. 25% marks will be deducted for each wrong answer.****Choose the correct answer.**

1. In the crank mechanism of an engine. The length of crank AB is 6cm and connecting rod is 24cm. From the triangle ABC, find out $\angle BCA$. If the $\angle BAC$ is 90° .
 a) $14^\circ 20'$ b) 15° c) 18° d) 21°
2. Name the material used for engine valve _____
 a) Steel Alloy b) Gun Metal
 c) Tungsten d) Forged steel, steel alloy
3. The weight of a ball is 1.875 kg and volume is 250c.c. calculate the density of the material.
 a) 6.9 gm/cc b) 7.3 gm/cc c) 7.5 gm/cc d) 7.40 gm/cc
4. 0.5metre long bar of 30cm diameter has a density of 8 grams/cc. calculate the mass in kg.
 a) 20.4 Kg b) 21.4 Kg c) 22.3 Kg d) None of these
5. Find the volume and weight of a metallic cone of diameter 14cm and height 10cm the density of metal is 8 grams/cc.
 a) 514.33, 4.120 b) 515.33, 4.12 c) 513.33, 4.107 d) 518.33, 4.14
6. If weight of a spherical metal ball is 2 kg and radius is 30mm, find the density of the material of the ball.
 a) 156.65 gm/cc b) 16.68 gm/cc c) 17.68 gm/cc d) None of these
7. An aluminum rod is of 10cm diameter and 2 meter long. Specific gravity of aluminum is 2.8. Rate of aluminum is Rs 80 per kg. Calculate the cost of the aluminum rod.
 a) R 3520 b) R 3620 c) R 3821 d) R 3723
8. Find the price of copper rod 5cm diameter and 12 meter long. Specific gravity of copper is 7.2 grams/c.c. and the rate is Rs 70 per kg.
 a) 11888 b) 11880 c) 11885 d) 11880

Contd...2/-

16/B/C/S-4/4/E (2015)

-2-

31/217, 32/224, 36/227, 42/222,
43/223, 47/216, 52/225, 55/215,
56/218, 58/226, 65/228, 66/229,
67/221, 274

9. One mile is equal to _____
 a) 1.58 km b) 1.76 km c) 1.60 km d) 1.6093 km ✓
10. One tonne is equal to _____
 a) 1001 kg b) 1500 kg c) 1000 kg ✓ d) 2000kg
11. Lathe bed is made of _____
 a) Mild steel b) Cast iron c) High carbon steel d) High alloy steel
12. With the following data:
 Tractor pulley: 24cm dia
 RPM: 1000
 Driven pulley rpm: 1500
 Find the diameter of thresher pulley.
 a) 14 cm b) 17 cm c) 18 cm ✓ d) 16 cm
13. With the following data:
 Gear of driven pulley: 40 teeth
 RPM of driving gear pulley: 200
 RPM of driving gear: 100
 Calculate the length of driving gear.
 a) 75 teeth b) 80 teeth c) 85 teeth d) 90 teeth
14. Solve: $\sqrt{0.00008281}$
 a) 0.091 b) 0.0091 c) 0.00091 d) 0.91
15. In a piece of gun metal 22 parts of copper 2.5 parts of tin and 0.5 parts of lead is present.
 Find out the % of each metal in the gun metal _____
 a) Copper-88%, Tin-10%, Lead-2% b) Copper-78%, Tin-9%, Lead-3%
 c) Copper-85%, Tin-10%, Lead-5% d) Copper-80%, Tin-8%, Lead-2.5%
16. How many pieces of 12cmX10cm sizes can be cut from an aluminium sheet of 100cm x 150cm. Find out the area unused sheet. Calculate the percentage of wastage.
 a) 205N, 1000sqMM, 4% b) 200N, 1000sqMM, 3%
 c) 200N, 1000sqMM, 6% d) 200N, 1000sqMM, 5%
17. If the average of 3 numbers is 17 and that is first two are 16, the third number is _____
 a) 19 b) 1 c) 16 d) 17
18. The bore and stroke of the four cylinders, Four strokes engine are 60mm and 80mm respectively. Find the air intake in 8 revolutions
 a) 14480.25 cc b) 14479.20 cc c) 144488.28 cc d) 144482.286cc

19. Number four cylinder engine having bore diameter of cylinder 60mm and stroke 210mm. Find total capacity in cubic cm?
a) 2276 cubic cm b) 2370 cubic cm c) 2270 cubic cm d) 2376 cubic cm
20. A 240 watt motor having resistance of its field coil 60 Ohm. What voltages require running the motor?
a) 122 volt b) 119 volt c) 120 volt d) 121 volt
21. One inch is equal to _____.
a) 2.5 cm b) 2.54 cm c) 2.45 cm d) 2.6 cm
22. One unit of electricity is equal to _____.
 a) 1 kW-hr b) 100 W-hr c) 1 HP-hr d) 1 kW-60 hr
23. Unit of power is _____.
a) Joule b) Watts c) Newton d) Kg-m
24. Unit of frequency is _____.
a) RPM b) Hz (cycles/sec) c) Rev/sec d) Radians
25. Joules is equal to _____.
 a) N-m b) N-m/s c) Kg-m d) None of these
