Ref. No.: Ex/PRN/Honours/H/T/425/2023

Bachelor of Printing Engineering Examination, 2023
(4th Year- 2nd Semester)
Print Production Maintenance (Hons.)

Time:3 hrs **Full Marks: 100**

Group - I
Answer the following questions. (30)

(1)(a) 'Pro-actively addressing two specific production control elements will be helpful in reducing production bottlenecks' – Explain the two. 4
(b) Explain each step to maximize equipment effectiveness. 6
(c) Why is reliability important in TPM? 5

(2)(a) 'The TPM system first addresses six operational and mechanical losses typically occur in graphic communications equipments'- Mention the six big losses. Explain any two mechanical losses. 6
(b) What are the basic process elements to minimize dot gain related production bottlenecks? 5
(c) How is mean time to repair different from mean time between failures? 4

Group - II
Answer question no. 3 and any one from the rest. (40)

(3)(a) Write down the application of cam & followers in printing machines. 5
(b) Where the chain drives are found in Printing Presses? Write down the advantage and disadvantages of chain drives. 5
(c) Write about different types of gears used in Printing Industry and their maintenance procedure. 5
(d) Explain in detail about the role of sensors and detectors in printing machine. 5

(4)(a) Write the short notes on the electrical elements i) Limit switches ii) Contactors iii) Electrical panels. 9
(b) Write down the general characteristics of worm gear. Write down the application of worm gears in Printing Industry. 6
(c) What is Mechatronics? Write down its key elements. Write down its application in print production. 5

(5)(a) 'Electrical problems in the printing industry have frequent occurrences' – Discuss each problem briefly. 5
(b) 'For installation and maintenance work variety of instruments are used'- Mention and briefly describe all of them. 5
(c) What is overlay relay switches? Classify and explain any one type. 5
(d) What is lubrication? What are the types of lubricants are there? Write down the purpose of using lubricants. 5

[Turn over

Group - III
Answer any one question. (10)

(6)(a) Differentiate between restoration and preventive maintenance. 5
(b) Prepare a sample Lubrication schedule for an offset machine and explain the importance of paint mark for lubrication? 5

(7)(a) Why Lubrication is essential for the machineries? 5
(b) What is 5S? Write down its uses and advantages? 5

Group - IV
Answer question no. 8 and any one from the rest. (20)

(8)For a particular equipment the following information have been provided:

i	Working hour per day	8 hrs
ii	Planned down time per day	20 mins
iii	Stoppage losses per day : Breakdown	15 mins
	Setup	15 mins
	Adjustment	20 mins
iv	Output per day	400 items
v	Rate of quality products	98%
vi	Ideal cycle time	0.5 mins/item
vii	Actual cycle time	0.8 mins/item

Calculate loading time per day, Operating time per day, Actual processing time, Availability, Operating speed rate, Net operating rate, Performance efficiency and OEE. 10

(9)(a) Is the OEE calculation different for bottleneck versus non-bottleneck equipments? How? 5
(b) How can FMEA be used to identify equipment failures? 5

(10)(a) Write down the importance for test run. Explain in detail about the types of test run used in the printing industry? 7
(b) How is the total downtime for repair determined in calculating mean time to repair? 3